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UNIVERSITY OF ALBERTA

A Psychometric Study of Parental Acceptance Perceived by Early Adolescents

by

Sung-Il Kim

©

A THESIS

SUBMITTED TO THE FACULTY OF GRADUATE STUDIES AND RESEARCH

IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE DEGREE

OF Doctor of Philosophy

Educational Psychology

EDMONTON, ALBERTA

Spring/1990

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DEGREE FOR WHICH THESIS WAS PRESENTED Doctor of Philosophy

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The undersigned certify that they have read, and recommend to the Faculty of Graduate Studies and Research, for acceptance, a thesis entitled A Psychometric Study of Parental Acceptance Perceived by Early Adolescents submitted by Sung-Il Kim in partial fulfilment of the requirements for the degree of Doctor of Philosophy.

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Abstract

This study concerned the development and validation of scales of parental acceptance as perceived by early adolescents, using advanced statistical techniques. A random sample of 1,000 subjects was drawn from 8,165 students, mostly Grades 5 through 9, who had participated in the U.S. national *Youth Survey* conducted by the Search Institute. Data from half of the sample were utilized for developing the scales, and the remainder were used for cross-validation of the resulting scales. Seventy items which seemed to reflect the construct of Parental Acceptance were selected from the 319-item questionnaire used in the *Youth Survey*. For developing scales yielding maximum possible homogeneity, principal factor analyses and cluster analyses were performed on the first and the second half samples. The results from the two analyses on the first half sample were almost the same as those on the second half sample, thus providing a certain amount of cross-validation. Factors reflecting Mother's and Father's Acceptance were almost the same in size to one another, except that factor analyses tended to produce scales somewhat larger than those produced by cluster analyses. Seven common items from the various analyses constituted the final scales. The mother and father forms were identical to each other. When the method of *reciprocal averages* was applied to the responses for the items, Hoyt's reliabilities of the scales improved slightly. For the confirmation of construct validity for the scales, 33 criterion items were selected from the *Youth Survey*, and grouped into six categories: (a) Helping Behavior, (b) Antisocial Behavior, (c) Feeling of Isolation, (d) Concerns about Social Problems, (e) Self-Concept, and (f) Ideal World-View. The rationale was that adolescents who grew up under two contrasting types of parental behavior, such as acceptance or lack of it, would show differences in their attitudes and concerns as reflected in the criterion items. The six hypotheses were clearly sustained.

Acknowledgements

I am indebted to many people, near and far, who helped me in one way or another finish this thesis. Here I wish to acknowledge those who have been most directly a part of these pages. First, I wish to express my sincere thanks to the members of my committee, Dr. Bruce Bain, Dr. Ram Gupta, Dr. Henry Janzen, Dr. Parameswara Krishnan, Dr. Krishen Mehra, Dr. Bob Mulcahy, and to the external examiner, Dr. Doug Willms, for their kindly advice and assistance in the preparation of this thesis. The comments of Drs. Mulcahy and Willms were particularly helpful.

Thanks are especially due to Dr. Gupta who provided the data employed in this study, for his valuable suggestions, warm-hearted encouragement and firm assistance throughout this study and continued even after his early retirement. Thanks are also due to Dr. Bain who, with thoughtful care and infinite patience, contributed to the development of the thesis as well as to that of its author as a person. Drs. Bain and Gupta not only gave the best professional guidance but also provided material and emotional support in various ways. Working with such dedicated, responsible professors has been a rewarding experience. It reminds me of my father in some way who, going through all kinds of hardships, tried his best to take care of his children so that they could become what they are today.

I wish to express my gratitude to my mentor in Korea, Dr. Yun-Sup Lee, who kept cheering me up at every opportunity, sometimes in silence, for giving a chance to pursue further study, and to my sisters and brothers, especially to my elder sister, Susanna, who has been praying quietly in her secluded, holy place, for their financial and moral support.

Last, but not the least, appreciation must be extended to my wife, Young-Sook, for her precious understanding, financial help, self-sacrifice, and continuous trust over the very long and arduous years. She enabled me to endure the unexpected sufferings in addition to the stress and to finish this thesis. Also, my loving gratitude goes to my two daughters, Young-Joo and Hae-Joo, who, through their innocence, genuineness, and consideration in their own ways, have provided the opportunities to reflect on myself and to learn to accept my weakness and that of others as well, though they have never intended to do that.

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I. Introduction

A. Background of the Study

> ...O wad some Power the giftie gie us to see oursels as others see us! (Robbie Burns, "To a Louse," 1785)

Socialization, as the agency of modeling, is the process by which children acquire values, beliefs, and standards of behavior which are expected from their social group. Although adolescents are more dependent than children on peer relationships, the family is still considered a more potent influence on the youth in most societies. For youth, the home continues to be an important place of security and their future performance as parents tend to reflect their own experience in the family (Harrington, 1987, p. 24; Rogers, 1982). Socialization occurs through parents' serving as models of behavior, expressing acceptance and warmth, providing restrictions or freedom, punishing unacceptable behavior, and in a host of different ways.

The general area of parental behavior has been studied in considerable detail since Symonds' work in 1939. One of the dimensions of parental behavior emerging from several studies is Parental Warmth or Acceptance (Goldin, 1969; Mussen, Conger, Kagan & Houston, 1984; Rohner, 1980; Rollins, 1979; Thomas, 1974). Warmth occupies a central role in socialization studies in its relationship to other measures of child-rearing. Warmth is important because it provides a background for parents' effort to raise their children and teach them certain values. It is a factor in children's willing acceptance of parental directives and inclinations. A positive, warm relationship is more effective for almost any kind of learning. Clausen (1980) argues that parental warmth, coupled with control, seems to be an essential ingredient in the production of competent children. Thus, efforts to discipline children are most effective when the child and the parents have a warm, supportive relationship. Several studies (Conger & Peterson, 1984; Maccoby, 1980; Martin, 1975; Oden, 1982; Rollins & Thomas, 1979) made it clear that without strong and unambiguous manifestations of parental love, the adolescent has far more difficulty in developing self-esteem, constructive and rewarding relationships with others, and a confident sense of his

or her own identity. Also, parental warmth and acceptance is one of the important factors contributing to the process of identification.

Drawing from intra-cultural and cross-cultural data, Rohner (1980, 1984, 1986) formulated a theory of socialization which attempts to explain and predict major consequences of parental acceptance and rejection for cognitive, emotional, and behavioral development of children. Among other things, his theory postulates that parental rejection has consistent effects on the personality and behavioral disposition of children.

Parental acceptance/rejection may be viewed from two perspectives: (a) that subjectively experienced by the child--or reported by the parent, and (b) that externally measured by an observer (Rohner, 1980). The extent to which self-perceived versus objectively determined acceptance/rejection are correlated is problematic in any given case. Subject factors such as level of cognitive development, cognitive style, and defensive repertory may produce a discrepancy between objectively described and subjectively perceived parental behavior (Jacob & Tennenbaum, 1988, p. 164). In some cases parents tend to skew their answers in the direction of social desirability (Ausubel, et al, 1954, p. 173; Harrington, 1988; McCrae & Costa, 1988; Robbins, 1963; Yarrow, 1963), and some may not be aware of certain aspects of their own behavior, such as the withdrawal of parental affection following a child's misbehavior (Maccoby & Martin, 1983). However, some researchers (Siegelman, 1965; Thomas et al, 1974) noted the general agreement between the parents' descriptions of their socializing practices and the children's description of the same. A considerable number of empirical studies of the child's report of parental behaviors (Goldin, 1969; Kroger, 1983; McCrae & Costa, 1988a; Schaefer, 1965; Siegelman, 1965) proved that a child's behavior is fairly obviously related both to the objective stimulating conditions and to the stimulus as experienced. In a sense, the children's reports may be more valid than those of the parents. Thus, what the child feels, rather than what the parent feels, may be more important in determining how the child acts.

Rohner's (1980, 1984, 1986) theory takes as axiomatic that parental rejection has its most consistent and predictable effects on the child, primarily insofar as the child perceives

the parent's behavior as being rejecting. Siegelman (1965) says that, "parent behavior effects the child's ego development only to the extent and in the form in which he perceives it" (p. 163). Ausubel and others (1954, p. 173) agree with this position. Barnett and others (1980, p. 365) also argue that in studying social-emotional development of children, their own perceptions of parents' characteristics and socialization practices are important information which cannot be replaced by the perceptions of others. Children's perception of their parents' behavior may be more related to their adjustment than is the actual behavior of their parents. Perhaps this hypothesis has motivated the volumes of research on parental behavior as well as children's perception of that behavior as shown by the survey of Stodgill (1937) and that of Rohner and Nielsen (1978), and by a list of instruments to measure these behaviors and perceptions (Straus & Brown, 1978).

Although there are many scales or instruments on parental behavior, few meet the criteria on which instruments are judged by professionals, specially, on the criteria of reliability and validity. The latter implies reliance upon an acceptable and justifiable theoretical framework. Only two published instruments using reports of parents' behavior in relation to their children are listed in *The Ninth Mental Measurement Yearbook* (Mitchell, 1985) and *Tests in Print III* (Mitchell, 1983). Neither has validity data. In fact, Mitchell (1984, p. 114) pointed out that some 41% of the tests listed in *The Eighth Mental Measurement Yearbook* (Buros, 1978) are lacking reliability and/or validity data in some important respect. The case of unpublished instruments on the parental behavior (Beere, 1979; Goldman & Busch, 1982; Johnson, 1976; Straus & Brown, 1978; Sweetland & Keyser, 1983) seems to be no better. Although the *Parent Acceptance-Rejection Questionnaire* developed by Rohner (1984) has good validity and reliability data, there are some limitations in its use, the chief one being that it has been developed for the perception of mother's (primary caretaker) behavior only.

In the area of test development, there has been an increasing interest in theory. This theoretical orientation is exemplified by the growing emphasis on constructs and the increasing use of construct validation. Construct validity involves the extent to which a test may be said

to measure a particular construct (Wolf, 1982). In psychometric terminology, a construct is a theoretical concept closely akin to a trait. A construct may be simple and narrowly defined, such as Spelling Ability; or it may be complex and broad, such as Mathematical Reasoning, Neuroticism or Anxiety. To Loevinger (1957, p. 636), from a scientific point of view, construct validity is the only validity. Criterion-related validities are *ad hoc*, and content validity relies too much on the judgement of the investigator, raising questions about generalizability. Loevinger (1957) believes that *ad hoc* arguments are scientifically of minor importance, if not actually inadmissible, and she terms both the approaches to validation as "administrative" and lacking in scientific basis. Messick (1980) describes construct validity as providing the most important foundation for relevance and for predictiveness of any test. He argues that "construct validity is indeed the unifying concept of validity that integrates criterion and content considerations into a common framework for testing rational hypotheses about theoretically relevant relationships" (1980, p. 1015). Anastasi (1988) has even gone to the extent of asserting that construct validity is a more comprehensive concept than others have conceived it to be and includes within its fold the other types of validity. Loevinger (1957) proposed a formulation of construct validation which employs several approaches. She said that in order to fully assess construct validity, it is necessary to use each of its three components sequentially. These components are: (a) the *substantive component*, which is concerned with the formulation of a sound rationale for a construct; (b) the *structural component*, which is founded upon the factorial structure (or homogeneity) of the scale purporting to reflect the construct; and (c) the *external component*, which is related to properly establishing criterion-related validity.

It is being recognized more and more that the development of a valid instrument requires multipronged procedures, employed systematically and sequentially. Validity can thus be built into the instrument from the beginning, rather than being apparently limited to the last stages of test development, as in traditional discussions of criterion-related validation.

In this context, the present study attempts to develop and validate a scale for adolescents' perception of their parental acceptance.

B. The Problem

The first part of the study is an operational definition of parental acceptance as perceived by early adolescents. The construct is described operationally both from psychological and sociological considerations, and also through an analysis of existing instruments currently available in this area such as those by Rohner (1984), Schaefer (1965), Schaefer and Bell (1958), Straus and Brown (1978), and Thomas and others (1974). From this point of view, seventy items (see Appendix A) which seem to represent this construct were selected from a pool of 319 items contained in *Early Adolescents and Their Parents: Youth Survey*. The survey was developed and published by the Search Institute, Minneapolis, Minnesota in 1982.

The major questions to which this research is directed were as follows:

1. Can a reliable and meaningful scale for measuring paternal acceptance as perceived by early adolescents be developed, using the operational definition of the construct as reflected in the selected items of an existing questionnaire?

2. Can the same be done for a maternal scale?

3. Can it be demonstrated that the scales developed under no. 1 and no. 2 above have construct validity?

C. Significance of the Study

Researchers often tend to design instruments on an *ad hoc* basis, considering content validity only. This leaves them in the dark in regard to the real value of the instrument from the psychometric points of view. It is apparent that a systematic approach to instrumentation is required. Thus, the basic contribution of this study is in paying sufficient attention to psychometric properties in developing a scale. This can be surmised in terms of factorial purity and resultant high internal consistency, and also in subsequently establishing construct validity.

On the side of theory, this study highlights the importance of parental modeling in the development of the child. As mentioned before, the effects of identification and imitation on

the socialization process are well known and can be influenced by perceived similarity and other qualities of the model such as acceptance, warmth, love, or nurturance. According to Bain (1983), all of us tend to view ourselves as we imagine "significant others" view us. If our parents rejected us as children, we are likely to define ourselves as unworthy of love and inadequate persons. These rejected children are likely to grow up into parents who will tend to reject their own children. In this way, the vicious circle tends to perpetuate itself. Actually, many abusive parents are known to have themselves been abused, deprived of warmth in childhood (Rohner, 1984), and apt to regard punishment as remedy for family problems (Maccoby & Martin, 1983). For the most part, they have not been exposed to models of successful parenting and they have scanty knowledge about child development (Conger & Petersen, 1984). The findings, therefore, can be substantially helpful for abusing parents. They would possibly be of use even to ordinary parents, adolescent parents, and single parents who may feel inadequate in their role for child rearing to know how they should bring up their children. Many single adolescent mothers, for example, are ill prepared to cope with the responsibilities of parenthood and their children are at high risk for child abuse (Conger & Petersen, 1984). Keshet and Rosenthal (1980) interviewed separated or divorced fathers and found that 44% reported receiving help from others in dealing with children's feelings, and that they expressed difficulty in relating to their children's emotional needs. Also, Kempe and Kempe (1978, p. 10) argued that some 20 to 30% of parents, including those with potential difficulty in parenting, have some difficulty in caring for their children adequately.

Moreover, the process of developing scales for father and mother separately highlights a number of interesting aspects concerning parent-child interaction. The majority of research so far has focused exclusively on mother-child relationship. However, there is a genuine need for proper understanding of the father-child relationship. There can be differences (and similarities) between father and mother in their modes of interaction with children, impact of individual differences among fathers on a variety of influences on the child, and the interplay of the mother-father-child triad. Hamner and Turner (1985) suggest that children develop best when their fathers as well as their mothers combine warmth with strength. Rohner

(1984) has developed the *Child Parental Acceptance/ Rejection Questionnaire*, which has high reliability and validity and is a self-report questionnaire where a child responds to his perceptions of the way his mother treats him. But, this questionnaire has no paternal counterpart and, therefore, does not enable us to find adolescents' perception of their fathers' acceptance.

Also, this study contributes to an evaluation of the theory of parental acceptance and rejection by Rohner (1980, 1984, 1986), on a more varied and relatively larger sample of adolescents. Accordingly, the importance of parental warmth and acceptance in child-rearing practices was again emphasized.

A major practical outcome of this research is an instrument useful in family and adolescent counseling on the premise that family atmosphere, especially parental acceptance, is strongly related to adolescent's personality and behavior problems. Furthermore, this instrument is available for conveniently measuring parental behavior in simplified and abridged manner, and is a valuable supplement to interview and observation as methods for the study of parental behavior.

II. Review of Related Literature

A. Dimensions of Parental Behavior

The ideas of warmth, acceptance and control have been of concern to humankind for thousands of years. The dimensions of love and power as well as the ideals of justice and mercy have connotations clearly tied to acceptance and control.

Much of the research work in this century on child-rearing and its effects has sought to identify characteristics whereby parents differ notably from one another. A number of early studies of parenting used interviews, questionnaires, or attitude scales to gather information from parents on their disciplinary techniques, typical reactions to specified child behaviors, and values concerning the child-rearing process. Several factor analyses were done of parents' scores on these batteries of items.

The utility of such concepts as warmth and control in the context of parent-child interaction has been recognized and advocated in empirical studies since Symonds' work in 1939. He noted that Acceptance/Rejection and Dominance/Submission could be considered as two basic axes along which parental behavior could be ordered. Since Symonds' original work, there has developed over the years a rather remarkable agreement among various theorists about ordering parent behavior according to two basic axes (Thomas et al., 1974).

Schaefer (1959) analyzed the intercorrelations of variables from a number of studies, showing two orthogonal variables: Warmth/Hostility, and Control/Autonomy. Becker (1964) proposed two very similar variables: Warmth versus Hostility, and Restrictive versus Permissive. Analysis of parental variables in Baldwin's (1955) studies also revealed a major Warmth/Coldness dimension, but two other dimensions emerged, neither of which clearly corresponded to the Restrictive/Permissive dimension: Democratic versus Autocratic, and Emotional Involvement versus Detachment. Democratic parenting reflected the degree to which the parents merely communicated information regarding the requirements of the real world in which the child operates.

Since the early work, concepts concerning the salient dimensions of parenting have undergone considerable change. The use of children's reports and observations of parent-child interaction has provided a more differentiated dimensional picture. Parker, Tupling and Brown (1979) identify two dimensions: (a) Caring and Empathic versus Rejecting or Indifferent, and (b) an Overprotection dimension that involves encouraging dependency and controlling. The influential work of Ainsworth and colleagues (1972) has emphasized Responsiveness, a dimension that is related to the Warmth/Hostility dimension.

Following the early factor-analytic studies, the Control/Autonomy dimension also began to break down and be redefined. Studies based on children's reports of their parents' child-rearing attitudes and behavior differentiated two dimensions: (a) Psychological Autonomy-Giving versus Psychological Control, and (b) Firm versus Lax Control (Burger & Armentrout, 1971). Baumrind and Black (1967) identified four dimensions that were surprisingly orthogonal: Consistent Discipline, Maturity Demands, Restrictiveness, and Encouragement of Independent Contacts. Recently, Maccoby and Martin (1983) differentiated the four patterns of parental behavior that result from the cross-classification of a more expanded and differently defined dual-dimensional system than the one employed by Becker (1964): (a) the Authoritarian-Autocratic pattern, (b) the Indulgent-Permissive pattern, (c) the Authoritative-Reciprocal pattern, and (d) the Indifferent-Uninvolved pattern. From small group research, factor analytic studies and cross-cultural evidence, Straus (1964) proposed that the two basic dimensions, which he labels as Support and Power (Control), could possibly be considered as universals of social structure, or at least the two most powerful empirical variables to emerge in family research.

From the foregoing it is concluded that any attempt at studying the impact of parental behavior upon children in the socialization process could profitably begin with attempts at describing and analyzing these two dimensions that have repeatedly come up in past research, and then endeavoring to relate them to consequential child behavior. Factor analytic research on child-rearing provides an empirical basis for describing more valid patterns of child-rearing. In a recent review of eleven factor analytic studies, Rothbaum

(1986) found that nine of them contained a factor on which Warmth loaded highly. In many cases, the Warmth factor accounted for the largest portion of the variance in parental behavior. As Thomas, Weigert and Winston (1984) emphasize, the major finding to date is that, of the two dimensions, Parental Acceptance is the better predictor of various adolescent characteristics.

B. Definition of Parental Acceptance

The variable Acceptance has been given a large number of labels in the literature, for example, Support, Nurturance, Love, Warmth, etc. But the connotations and denotations attached to the different labels have been relatively similar.

Rollins and Thomas (1979) defined Support as "behavior manifest by a parent toward a child that makes the child feel comfortable in the presence of the parent and confirms in the child's mind that he is basically accepted and approved as a person by the parent" (p. 320). Thomas and others (1974) defined Support as "referring to that quality of the interaction which is perceived by the self as the significant others establishing a positive affective relationship with him" (p. 10). They said, it has connotations similar to the notion of unconditional love with a reduction of the emphasis upon the justice dimension in interpersonal behavior.

In Siegelman's (1965) study, Loving refers to parental support, participation, praise, and affection for the child. Krishnamurti (1981) argues that love can bring about the understanding of another and an integrated understanding of life. He says:

> A parent who really desires to understand his child does not look at him through the screen of an ideal. If he loves the child, he observes him, he studies his tendencies, his moods and peculiarities. It is only when one feels no love for the child that one imposes upon him an ideal, for then one's ambitions are trying to fulfill themselves in him, wanting him to become this or that. If one loves not the ideal, but the child, then there is a possibility of helping him to understand himself as he is. When one has no love, no understanding, then one forces the child into a pattern of action which we call an ideal. Without love no human problem can be solved. In the love of the child, right education is implied (p. 26).

Warmth is closely bound up with several of the aspects of parenting. Maccoby (1980) said that "a warm parent is deeply commited to the child's welfare, responsive to the child's

needs, sensitive to the child's emotional states" (p. 392), and emphasized that noncontingent acceptance of the child is the characteristic shared by all these aspects of warmth. Becker (1964) defined Warmth dimension by variables of the following sort: "accepting, affectionate, approving, understanding, child-centered, frequent use of explanations, positive response to dependency behavior, high use of reasons and praise in discipline, and low use of physical punishment" (p. 174). He found the nature of the affectional relations between parent and child was correlated with the use of certain kinds of discipline. In particular, the use of praise and reasons was repeatedly found associated with warmth variables. Raush and Bordin (1957) explored the concept of warmth as a significant factor in effective psychotherapy and personality development. They considered that warmth has three aspects: commitment, understanding, and spontaneity and examined these three components in detail:

> The therapist demonstrates some degree of willingness to be assistance to the patient, such as offering help in various forms, the therapist shows his effort to understand by his interest in understanding the patient's view, and the therapist is not guarded, either consciously or unconsciously not masking all of his feelings (p. 352).

The term Nurturance is used to refer to the caretaking functions of the parent. As Baumrind (1967) says, it refers to "those parental acts and attitudes that express love and are directed at guaranteeing the child's physical and emotional well-being" (p. 57). She regards warmth as the parent's personal love and compassion for the child expressed by means of sensory stimulation, verbal approval, and tenderness of expression and touch. Thus, nurturance is expressed by warmth and involvement. Finney's (1961) definition is quite similar to Baumrind's. He said, "nurturance is the willingness and desire to respond helpfully and to fulfill the child's needs" (p. 203). In other words, it is a tendency to respond to a child by taking care of him and meeting his needs.

According to Rohner's (1980, 1984, 1986) theory, conceptually, parental acceptance and rejection together form the Warmth dimension of parenting. Parental warmth is construed as a bipolar dimension where rejection, or the absence of parental warmth and affection, stands at one pole of the scale in opposition to acceptance at the other pole. Accepting parents are defined as those who show their love or affection toward children either physically or verbally. Rejecting parents are those who dislike, disapprove of, or resent their

children. In many cases, they view the child as a burden, and tend to compare him unfavorably with other children. Rejection is manifested in two ways, namely, in the form of parental hostility and aggression on the one hand, and in the form of parental indifference and neglect on the other. Schaefer (1965) indicated acceptance meant sharing, expression of affection, support, and positive evaluation. Rothbaum (1986, p. 454) emphasized that parents who have high level of acceptance take helping approach. Such parents seek to provide a warm, supportive context for the child, to develop tools tailored to the child's individual needs. They demonstrate a desire to be with the child and express enjoyment of the child. Although they are generous with explanations, the focus is on the child's understanding rather than the explanation per se. They are able to communicate their point of view and explain what is and is not acceptable without criticizing the child. They show awareness and acceptance of the child's needs for independence and control. They can meet these needs rather than inhibit them or give them too much latitude. Warmth is expressed through closeness with the child, especially in response to the child's desires and needs. They believe that if you give affection and demonstrate confidence in the child, the child will grow from the support and learn to give in return, thereby making it easier for them to give.

In this study, parental acceptance is defined as a positive, affective relationship with a child, with considerable emphasis on helping approach. Parental acceptance, as a unidimensional construct, is a continuous quantitative variable. Operationally, this variable is a summation of the frequencies of such parental behavior toward a child as encouraging and helping.

C. Importance of Acceptance

In an effort to assist parents in becoming more effective in a rapidly changing society, a number of professionals have developed strategies of parent education. Four most popular, recent parenting strategies appear to be *Parent Effectiveness Approach* by Gordon (1970, 1989), *Systematic Training Approach* by Dinkmeyer and McKay (1989), *Transactional Analysis Approach* by Berne (1964), and *Humanistic Approach* by Ginott (1965). After

comparing these strategies, Bigner (1979, pp. 22-23). Hamner and Turner (1985, p. 102) found these four strategies share several similarities. Two of them are that parenting behaviors are manifested in a context of reducing parental power and accentuating nurturance in caregiving. That is, most strategies attempt to lessen the degree of power of the parent in controlling children's behavior. These strategies can be considered child-oriented methods of child-rearing that recognize the children's needs in relation to those of the parent. "Power-assertive" or domineering methods of controlling child behavior have been found to produce a variety of reactions in children that range from high anxiety levels to inhibition of creative abilities. Also, these strategies encourage parents to adopt a counselor role by listening to children's problems in an understanding and helpful manner. Certain interactions with children call for a parent to respond to feelings and emotions expressed by children in a manner that is both appropriate and encouraging of their emotional growth. Caregiving is generated through empathic understanding of a child's problem. Parents are taught to counsel their children but not preach to them or attempt to solve their problems for children themselves.

The core effect of acceptance in parent-child interaction patterns is seen as having two emphases: (a) the informational content that the self has worth, and (b) a motivational component (Thomas, et al., 1974). If parents who are supportive of their children communicate to the child something of his inherent worth, this should be related to a number of different dimensions of the self system, as well as different types of conforming and nonconforming behavior. Supportive parents generally approve of the child's efforts to produce an effect upon the environment, and simultaneously let the child know that they are there if he or she needs them. Parental warmth and acceptance are likely to make children regard themselves better, make them more confident of their actions and less concerned about the potential negative consequences of what they might do (Staub, 1978, p. 72). It is this supportive aspect of human behavior which is seen as having a profound effect upon the recipient. The teachers in Rosenthall and Jacobson's (1968) research are seen as typifying this type of relationship where they believe in the capability and general worth of the individual,

and communicate this to him as well as letting him know they are there, if needed. Rogers (1983) regards acceptance as one of the attitudes that stand out in teachers who are successful in facilitating learning.

To be effective, the disciplinary technique must enlist already existing emotional and motivational tedencies within the child. This factor depends on the general affective state of the parent-child relationship. Parental warmth and acceptance create an atmosphere in the home in which children are more likely to learn whatever parents teach them, verbally or through their example. Children's compliance is shown to be associated with parental acceptance, emotional bonding and the fostering of trust (Maccoby & Martin, 1983). A warm parent induces in the child responsiveness to his directions by providing an atmosphere in which the child has continuous expectations that good things will happen to him if he stays near his parent and responds to his parent's wishes. In the highly supportive socialization environment, the child learns to be an effective agent vis-a-vis the environment, and thus, even after frustrating experiences, he will continue his own efforts toward solution of the task at hand. The frequent use by warm parents of reasoning and explanation permits the child to internalize social rules and to identify and discriminate situations in which a given behavior is appropriate (Hetherington & Parke, 1986).

As suggested by Moore and Eisenberg (1984, p. 156), acceptance acts as a background or contextual variable that functions to orient the child positively toward the parent and makes the child receptive to parental influence, including parental inductions and moral standards. That is, parental acceptance binds children to their parents in a positive way so that it makes children responsive and more willing to accept guidance. If the parent-child relationship is close and affectionate, parents can exercise what control is needed without having to apply heavy disciplinary pressure (Maccoby, 1980, p. 394). In other words, warm, loving parents tend to create a secure, stressless environment in which the child can be more readily socialized and thus learn more appropriate behaviors. They promote the healthy exploration of the world because they provide a secure base to which the child can return if stressors are encountered. Santrock (1990, p. 227) argues that a continuing secure attachment

in adolescence likely promotes the healthy exploration of the environment. However, Parish (1987, p. 171) said, if parents are hostile or uncaring, or if the family is generally perceived to be unhappy, the longer these circumstances persist, the more chronically troubled the youth may become.

Acceptance is also important because it may make the child more likely to emulate the parent. An affectionate, warm relationship with a parent is likely to make children want to be like their parents and adopt parents' values and behaviors to a greater degree. It is likely to lead children to identify with the parents and adopt or internalize their values. What is decisive for whether or not a child is likely to develop in disciplined ways is the psychological and emotional atmosphere which reigns in the home. Bettelheim (1987) said that "the parents who were most successful in raising disciplined children were themselves responsible, self-disciplined persons, living examples of the values they embraced" (p. 103). Spock (1988) agrees with Bettelheim, when he says:

> When children have been well loved by their parents, this engenders a responding love in them that makes them want to become grown-ups like their parents and makes them want to please their parents. This is really the main leverage parents have in controlling or motivating their children (p. 133).

Recently, Spock (1990, p. 106) offers his advice for the 21st century family, saying that family ties are the most rewarding values and parents should teach spiritual values such as love to their children, avoiding talking down to them.

High acceptance is known to generally lead to greatest similarity between adolescents and parents. Using middle class high school students in five nations (U.S., Spain, Mexico, Germany, and Puerto Rico), Thomas and others (1984) have shown that the greater the warmth and acceptance, the greater the child's identification with the parent.

Acceptance of the other, as he is, is an important factor in fostering a relationship in which the other person can grow, develop, make constructive changes, learn to solve problems, move in direction of psychological health, become more productive and creative, and actualize his fullest potential (Gordon, 1970, p. 56). It is one of those simple but beautiful paradoxes of life: When a person feels that he is truly accepted by another, as he is, then he is freed to move from there and to begin to think about how he wants to change, how

he wants to grow, how he can become different, how he might become more of what he is capable of being. Gordon (1974, p. 58) describes, "to accept another as he is is truly an act of love; to feel accepted is to feel loved." He goes on saying that:

> People tend to seek the company of people who are accepting and avoid those who are very critical and judgemental. Constant evaluation produces discomfort and anxiety, and inhibit rather than promote change (p. 28).

That is, lack of acceptance closes people up, makes them feel defensive and afraid to talk or to take a look at themselves. The main result of such parental rejection and indifference is the creation within the child of an attitude of basic hostility. Horney (1937) emphasized that a coldly indifferent, rejecting attitude of the parents toward the child lies at the source of later neurosis, saying that:

> The basic evil is invariably a lack of genuine warmth and affection. A child can stand a great deal of what is often regarded as traumatic--such as sudden weaning, occasional beating, sex experiences--as long as inwardly he feels wanted and loved (p. 80).

Acceptance is one of the most important elements contributing to the growth and change that take place in people through counseling and therapy. Warmth or acceptance is one of the important personal characteristics of the therapist (Brammer, Shostrom & Abrego, 1989; Corey, 1986; Fiedler, 1950; Patterson, 1984; Rogers, 1957) and healthy people (Maslow, 1987). Helper warmth is important in relationship terms because it appears to beget reciprocal warmth from the client (Goldstein & Meyers, 1986). Without it, specific helping procedures can be technically correct but therapeutically impotent. Raush and Bordin (1957, p. 352) have even gone to the extent of emphasizing that psychotherapy will never start unless the therapist from the beginning has a surplus of warmth.

However, caution should be exercised in supposing that use of "love-oriented" techniques of discipline is good and use of "power-asserting" techniques is bad. One should be thinking more in terms of optimum levels rather than this is good and that is bad. It is sometimes said that too much love does harm to a child. Finney (1961) said that "the mother who is too good to the child will spoil him or her" (p. 207). Elkind (1984) emphasizes cautiously that "parents really do not help teenagers when they try to understand too much, and teenagers need to experience at home the kinds of standards and values they can expect to

face in the larger world" (p. 204).

The need for basic feelings of trust, and for loving and caring parents is well documented, in clinical literature and also in several systematic investigations of normal, neurotic, and delinquent children and adolescents, which are discussed in the subsequent section.

D. Outcomes of Parental Acceptance or Rejection

It is generally agreed that parental behavior has a crucial effect on the social and emotional development of offspring, and it is often recognized that this process between parents and children is reciprocal or interactive (Rohner, 1980). This study, however, focuses noninteractively on the relation between adolescents' perceptions of parental acceptance and their effect on the behavior of adolescents.

According to Rohner's (1980, 1984, 1986) theory, acceptance and rejection have consistent effects on the behavioral and personality dispositions of children everywhere, as well as on the personality functioning of adults who recall being rejected as children. Approximately 800 studies have been completed since the 1930s on parental acceptance/rejection and their consequences. Many of these studies were reviewed by Rohner (1975) and by Rohner and Nielsen (1978). In that literature it seems quite clear that the effects of rejection often have serious consequences for personality development, such as poor self-concept, aggression, delinquency, negative world-view, and interpersonal-relation problems.

Self-Esteem

Since William James (1890/1981) identified self as a central concern of psychology, there has been a steady stream of research on the topic, nicely summarized by Gecas (1982), Markus and Wurf (1987), and Wylie (1979). Among the thousand self-concept studies cited by Wylie (1979) over 90% focused on the evaluation dimension, so that her volumes could as accurately have been retitled more narrowly as "Self-Esteem." Although the constructs

self-concept and self-esteem are generally used interchangeably, they refer to somewhat different phenomena. The self-concept represents a totality of one's perceptions, whereas self-esteem is one dimension of this totality. Branden (1969, p. 110) stated that self-esteem refers to the individual's view of himself or herself, which has two interrelated aspects of self-confidence and self-respect. Battle (1989, p. 26) said that self-esteem refers to the perception the individual possesses of his or her own worth.

Self-esteem is a global, emotional evaluation of oneself, in terms of worth (Rohner, Rohner & Roll, 1980, p. 214). Positive feelings of self-esteem imply that individuals like or approve of themselves, accept themselves, perceive themselves as being persons of worth. Negative self-esteem, on the other hand, implies that one dislikes or disapproves of oneself, devaluates oneself and sometimes feels inferior to others, perceives oneself to be a worthless person or fit for condemnation. All of us can place ourselves somewhere along this continuum.

Symbolic interaction posits that adolescent self-esteem is a function of the parent's reflected appraisal of the adolescent's inherent worth, which occurs during the course of parent-adolescent interaction. Researchers and theorists (Bain, 1983; Mead, 1934; Oppenshaw, Thomas & Rollins, 1983, 1984, p. 260) working from symbolic interaction theory, assumed that parental acceptance transmits to adolescents information pertaining to their inherent worth. The main effect, of the information transmitted to adolescents, is the confirmation in the adolescents' mind that their parents accept them as worthwhile individuals. It logically follows that, as parents interact with adolescents in supportive ways, adolescents will feel as though they are worthwhile individuals with the capability of effectively acting upon and reacting to their immediate environment. Thus, parental acceptance should be positively related to adolescent self-esteem. Hayes (1989) says:

> We decide what we are worth by evaluating the reactions of those we care about. Other people are the mirrors to our understanding of self. If we look into the face of the person we are interacting with and see acceptance and love, we assume we are good (p. 108).

As Sullivan (1947) stated, the self-system has its origins in interpersonal relationships, especially with significant others, and is influenced profoundly by reflected appraisals.

Sullivan's comments indicate that, if significant others communicate to the child the feeling that he or she is approved of, respected, and liked, he or she will develop a sense of self-acceptance and respect for himself or herself and others as well.

In contrast, social learning theory emphasizes vicarious or observational learning and suggests that adolescent self-esteem is positively related to the parent's self-esteem. Bandura and Houston (1961) contend that children who have experienced acceptance and support from the model are more apt to imitate the model, thereby facilitating vicarious learning of those parental attributes characteristic of self-esteem. Thus, the extent to which the adolescent models parental self-esteem will be mediated by parental acceptance and support. If we assume, as social learning theory posits, that parental acceptance facilitates the vicarious learning process, then it follows that as the perceived acceptance of the parents increases, the probability of adolescents identifying with the parents is greatly enhanced. Thus, adolescent self-esteem is positively related to the product of the interaction between parental acceptance and self-esteem.

Coopersmith's (1967) studies of the antecedents of children's self-esteem indicated that parents' child-rearing styles is a key variable affectng the development of self-esteem in children. His findings were that high self-esteem in children is related to parental acceptance and less drastic forms of punishment (that is, less use of corporal punishment and less use of withdrawal of love for misbehavior). In Coopersmith's results, we find some confirmation for the ideas of "the looking-glass self": Parents are a child's social mirror, and if children see that parents regard them with affection and respect, then they come to think of themselves as worthy of affection and respect. Graybill (1978) and Sears (1970) likewise found that parental acceptance and warmth correlated positively with children's self-esteem. In a sample of 208 Puerto Rican adolescent males, Saavedra (1980) found that adolescents' perceptions of self-esteem varied directly with their perceptions of both maternal ($r = .43$, $p<.001$) and paternal warmth ($r = .42$, $p<.001$). In a similar study, Rohner, Hahn and Rohner (1980) found parallel results among 25 children aged 7 through 12 in working-class Korean immigrant families in the U.S. In an assessment of verbal response patterns and

self-esteem among 208 eighth-grade students and their mothers, significant relationships were found between maternal empathy and positive regard for the child, and the child's self-esteem (Rohner & Nielsen, 1978). Medinnus (1965a) studied 44 college freshmen utilizing a series of measures of self-acceptance and personal adjustment, perceived acceptance by the parent, and other measures of parent-child relations. Adolescents who measured high in self-esteem on those scales perceived their parents as warm and loving. Kawash, Kerr and Clewes (1985) found that, in a sample of 126 fifth- and sixth-grade children in Ontario, children who perceived parents as high in acceptance had significantly higher self-esteem than those who perceived both parents as low in acceptance (For boys, $r = .48$ for mothers and .55 for fathers; for girls, $r = .32$ and .22, respectively). Nunn and Parish (1987) indicated from data of 632 fifth- to tenth-grade students that evaluations of self were significantly correlated with both ratings of the students' mother ($r = .28$, $p<.001$) and father ($r = .31$, $p<.001$). Self-esteem was also found to be positively related to parental nurturance of 125 undergraduates (Buri, 1989), to parental unconditional love of one-hundred and ninty-four 16- to 18-year-olds (Cramer, 1989), to maternal support of 76 Israeli 14- to 16-year-olds (Hoffman, Ushpiz & Levy-Shiff, 1988), and to parental acceptance of two-hundred 8- to 12-year-olds (Kapur & Gill, 1986). Felson and Zielinski (1989) found that, in a longitudinal data of 338 fifth to eighth graders, the parent support variables explain 12.2% of the variance in change in self-esteem for girls and 3.6% of the variance for boys.

According to Rohner's (1986) theory, if parents, as the most significant of others, reject their children, then it follows that they are apt to view themselves as unlovable and therefore unworthy and inadequate human beings. These self-attributions are the essence of negative self-esteem. Children who think of themselves as worthless, no good, and worthy of condemnation easily generalize these feelings to beliefs about personal incompetence and inability. These children feel they have little control over important events in their lives. They become caught in a self-fulfilling prophecy: Insofar as they feel less competent and less masterful, they may, in fact, behave that way. Others then evaluate them more negatively, and this negative evaluation feeds back onto their impaired feelings of self-esteem.

Using a pancultural sample of 101 societies, Rohner (1975) found that rejected children throughout the world tend to evaluate themselves more negatively than accepted children. This result has been supported in two different samples between the ages of 8 and 12 in the U.S., one in the metropolitan Washington, D.C. area and the other in a suburban Connecticut community. Starkey (1980), using a sample of 220 fourth- and fifth-grade boys and girls in the Washington, D.C. area, found that children who perceive themselves to be rejected report having more feelings of negative self-esteem. Rohner (1980), using a sample of 316 children in Grades 3 through 6 in a Connecticut school district, also found the same result as Starkey's. Moreover, in a sample of 1,684 high school juniors and seniors, Rosenberg (1963) found that low self-esteem was associated strongly with extreme parental indifference, thus implicating the Warmth dimension of parenting in the etiology of negative self-esteem. Recently, Rohner (1986, p. 96) reported additional supportive evidence showing a significant tendency for parental rejection to correlate positively with children's negative self-esteem ($r = .38$, $p<.001$) in a sample of 764 American children 7 through 11 years old. Robertson and Simons (1989) also found that perceived parental rejection was associated with lower self-esteem ($r = -.37$) in a sample of 300 adolescents. And Kitahara (1987) found that parental rejection in childhood was significantly related with negative self-concept of 71 Swedish university students.

Helping Behavior

Parental acceptance or affection has been found to contribute to prosocial behavior such as helping because when the child's signals of needs are met responsively, the child feels secure, self-concern is minimized, and the child identifies with and imitates the prosocial parent.

A positive affective orientation should result from parental acceptance. The child who receives affection and is allowed considerable impulse expression is less likely to be driven by unfulfilled emotional needs and by pent-up hostility, which might either blind him to the needs of others or sensitize him to others only for his own instrumental purposes. It is

essential for emotional security which may in return contribute to altruism by lessening the child's preoccupation with his own emotional needs, thus opening him up to the needs of others. This is suggested by the findings (Hoffman, 1975b, p. 938) (a) that helping another child in distress relates positively to emotional security, (b) that helping another child in distress is increased by an experimentally induced experience of success and by prior interaction with a friendly adult, and (c) that charitable behavior correlates negatively with a need for social approval.

Acceptance is also likely to create positive feelings for the parent which may be generalized to others, makes the child more receptive to victim-centered discipline, and increases the likelihood of his emulating an altruistic parental model (Hoffman, 1963, p. 574, 1975a, 1981, p. 367; Santrock, 1990).

Parental warmth or affection is a variable that may have a direct impact on children's moral development and an indirect influence by moderating the effectiveness of any particular disciplinary strategy. Parental affection was consistently associated with 11- to 13-year-old children's altruistic inclinations (Hoffman, 1975b) and seventh graders' consideration for others (Hoffman & Saltzstein, 1967, p. 54; Mussen & Eisenberg-Berg, 1977, p. 91). Seventh-grade pupils' reputations for consideration of others were assessed by nominations from classmates. Their views of their parents' treatment of them were evaluated by means of report forms administered to lower- and middle-class children. Among middle-class boys and girls consideration for others was found to be directly related to the mother's affection but not to the father's. Among lower class, both maternal and paternal affection were related to boys' but not to girls' consideration of others. There is some evidence to suggest that perhaps any type of discipline may be more effective when administered in a warm, affectionate context, and that parental affection is associated with moral values and with other children's perceptions of the child as considerate.

Parental acceptance often serves to reinforce and intensify the positive effects of direct modeling and identification, resulting in increased helpfulness and generosity. Parental acceptance may be viewed as the modeling of prosocial behavior. By being nurturant, parents

act as models of consideration, kindness, and sympathy. Mussen (1980, p. 90) suggested that acceptance appears to be most effective in producing or strengthening propensities to prosocial behavior when it is part of a pattern of child-rearing and training that includes modeling of prosocial acts. Moore and Eisenberg (1984, p. 155) found that maternal reports of affection are associated with prosocial behavior for sixth graders, and for peer-report of fifth graders' consideration for others. Maccoby (1980, p. 393) found that children whose parents are above average in acceptance and affection tend to be more considerate of peers and more altruistic. According to *Youth Survey* (Search Institute, 1984, p. 172), young adolescents who help other people tend to come from families which are affectionate and nurturant. The contribution of acceptance or affection to altruism is indicated by several other correlational studies (Hoffman, 1977; Mussen, Harris, Rutherford & Keasey, 1970; Rutherford & Mussen, 1968). In general, then, these findings are consistent with the hypothesis that parental acceptance fosters the development of prosocial behavior.

Moreover, the willingness of children to imitate altruistic adults is increased if the model has previously established a warm relationship with them (Shaffer & Brody, 1981; Yarrow, Scott & Waxler, 1973). Bryan (1975, p. 147) found that helpfulness by a warm model is imitated more than such behavior by one who is indifferent or cold toward the child. It is likely that warm adults are likely to be helpful ones as well and thus both provide frequent examples of helping acts and help the children directly.

Parental affection, by satisfying the child's own emotional needs, may be particularly important in the development of empathy by enabling the child to be receptive to the emotional needs of others. Congruent with this notion, Barnett and others (1980, p. 361) found that mothers of highly empathic adolescent sons were reported as being more affectionate than were mothers of less empathic sons. The failure to find a similar relationship for adolescent daughters was suggested to be due to a ceiling effect on the daughters' empathy scores. Jensen and others (1981) found that there was a positive relationship between parental support and empathy scores of children. For college students, the accepting parent variable was also positively correlated with their empathy (Hower &

Edwards, 1979).

Antisocial Behavior

One important aid to moral learning is a warm, accepting relationship of mutual trust and esteem between parent and child (Rice, 1987, p. 563). In a warm, emotional context, respected parents are likely to be admired and imitated by youths, resulting in similar positive traits in the adolescents. Youths learn consideration for others by being cared for, loved, and trusted by their parents. Parental acceptance or affection has repeatedly emerged as a key dimension relating positively to the development of heightened levels of conscience control (Sears, Maccoby & Levin, 1957) and moral internalization (Hoffman, 1963, 1981, p. 367).

Conversely, in an atmosphere of rejection and hostility, youths tend to identify with the aggressor, taking on the antisocial traits of a feared parent (Rice, 1987, p. 563). Parental values and behaviors which emphasize the punishing aspects of discipline appear to present a model of hostility for the child which tends to become translated into a heightened level of hostile behavior. Such parents may be expected to interrupt or frustrate the children's satisfaction, an action which produces an instigation or drive for aggression (Finney, 1961, p. 206). Bettelheim (1987, p. 62) argued that emotionally cold and indifferent parents are likely to produce either emotionally frozen or violently angry children. Carson, Butcher and Coleman (1988, p. 114) indicated that parental rejection has been associated with a more or less specific pattern of development in child victims. They go on saying that these children tend to be overly aggressive and prone to impulsive behavior, lack the capacity to form meaningful relationships. While Chorost (1962) found that parental warmth is negatively related to overt hostility of 79 emotionally disturbed adolescents, Kagan (1958) found that an atmosphere of rejection is positively associated with maladaptive development.

Rejected children are also apt to become resentful of or angry at their parents. They may act out their anger directly or they may keep it bottled up, creating problems with its management. According to Rohner (1986, p. 83), rejected children are especially likely to become hostile and aggressive if parental rejection takes the form of hostility and aggression.

Under these conditions children are provided a hostile model to emulate and in this way their aggressive dispositions may intensify. The link between parental rejection and childhood aggression has been recognized for several decades. Symonds (1939), for instance, compared a group of rejected children with a control group of accepted children. He found that the rejected children were significantly more rebellious than the accepted group. McCord and others (1961) discovered three major familial correlates of aggression among 174 boys, including the lack of warmth in the relationship between the boys and their parents. Bigner (1979, p. 54) argued, when mothers are warm and affectionate consistently, children tend to develop a strong sense of responsibility for their behavior and to have feelings of guilt and sorrow when they have done something wrong. However, when mothers show rejection (usually involving punishment) consistently, increased aggression toward other children, resistance to cooperation with authority figures, and hostile acting-out behaviors are specific reactions by children. In the long run, the continuous use of rejection may result in children who withdraw from social interaction with others, quarrel extensively among each other, and openly express aggression when provoked. Rohner (1986, p. 96) found in a world-wide sample of 101 societies that parental rejection is associated with hostility and aggression both in childen and in adults. In a sample of 764 elementary school children in U.S., he reported parental rejection is positively correlated with children's hostility and aggression ($r = .41$, $p<.001$). Roberts (1988) said that bullies usually originate in a family that neglects, rejects, or abuses children.

Insofar as rejected children tend to be aggressive, and emotionally unstable, one of rejection's malignant by-products is the creation of children who are less easy to be with than accepted children (Rohner, 1986, p. 86). This in turn can trigger a response in a susceptible parent of even further rejection, and a vicious interactive spiral is created that becomes even harder to interrupt. In effect, rejected children often become unwittingly provokers of their own subsequent rejection or abuse (Erchak, 1981). The personality constellation associated with rejection also reduces the likelihood that rejected children will develop fully satisfying peer relations or satisfying relations with teachers or other nonfamily members. And so the

rejected children's already damaged sense of self-esteem is further diminished.

The importance of parent-child relations as a highly significant variable in presumed causes of juvenile delinquency is well documented in the literature. Theoretically, inadequacies in the parent-child relationship predispose some children toward delinquent behavior by making them less likely to abide by socially sanctioned behavior and strategies designed to meet their individual needs. Empirically, a brief review of the literature (Kroupa, 1988) dealing with parent-child relations and juvenile delinquency reveals fairly consistent findings: Delinquents tend to be associated with more negative parental and family interactions and perceptions than do nondelinquents.

Nye (1958) found that both boys and girls from the most delinquent group tended to perceive their parents as more rejecting than did adolescents from the least delinquent group. Young (1964) argued from the analysis of 300 case records that in cases of behavior disorders, as well as child abuse, parents were frequently so involved with their own demanding and unfulfilled emotional needs that they were incapable of providing warmth and affection for their children. In addition, the constellation of personality characteristics associated with rejection including hostility were generally conducive to difficulties with interpersonal relationships. Conduct problems and difficulties in overall adjustment are frequently found in children and adolescents who have experienced parental rejection. Parents of problem children, according to Santrock (1990) and Schulman, Shoemaker and Moelis (1962), are generally more rejecting and openly hostile toward their children. Glueck and Glueck (1950) found that delinquent children had parents who were more severe in their punishment, more indifferent and less affectionate. Goldin (1969) analyzed 60 studies on children's reports of parent behaviors in terms of acceptance and punishment factors and found that delinquents perceived parents as rejecting. Several longitudinal studies (Snyder & Patterson, 1987, p. 224) demonstrated that parental coldness and rejection, a lack of affection for the child are predictive of delinquent behavior. Himes-Chapman and Hansen (1983) found that the delinquents in the Youth Home viewed their parents as less loving and more rejecting than did a normal group of adolescents. Steinberg (1987) found that parental neglect

is associated with preadolescent onset delinquency. Using data from the follow-up of 847 families, Kolvin, Miller, Fleeting and Kolvin (1988) reported that children who grew up in deprived were more at risk for delinquency during later childhood and beyond. Also, Simons, Robertson and Downs (1989) found that, in a sample of about 300 adolescents aged 13 to 17, parental rejection is positively correlated with delinquency (r = .38).

This relationship between love deprivation and juvenile delinquency appears to be more pronounced in the case of violent delinquency, as Montagu (1978) summarized:

> Take almost any violent individual and inquire into his history as a child, and it can be predicted with confidence that he will be discovered to have had a lacklove childhood, to have suffered a failure of tender, loving care (p. 178).

Walsh and Beyer (1987) found that, in a sample of 131 male delinquents, love deprivation was correlated with violent crime (r = .49, p<.001) and drug abuse (r = .19, p<.05). Again, Walsh, Beyer and Petee (1987) confirmed these findings from data of 256 male delinquents.

There is a close relationship between delinquency and self-concept. Rice (1987, p. 236) said that delinquent youths tend to show lower self-esteem, so they adopt deviant patterns of behavior to reduce self-rejecting feelings. In other words, if their behavior begins to match their low opinions of themselves, they decrease their own self-derogation and rejection. They seek to restore their self-respect by aligning themselves with deviant groups that accord them the approval. According to Wells (1989), extremely low self-esteem predisposes people to participate in delinquency, because they have little to lose by deviating and something to gain in terms of self-esteem. Delinquent events may sometimes involve daring, normatively ambiguous acts, particularly among adolescents. In a sample of 1,886 adolescent boys, Rosenberg, Schooler and Schoenbach (1989) found that low self-esteem fostered delinquency (r = -.19, p<.05) and that delinquency enhanced self-esteem (r = .08), especially for low socio-economic status groups (r = .14, p<.05). Simons and Robertson (1989) insist that parental rejection affects negatively children's self-esteem, which is a precursor to deviance, including substance use. They found that, in a sample of 343 adolescents, parental rejection was correlated with self-esteem (r = -.33, p<.01),

aggressiveness (r = .28, p<.01), and substance use (r = .36, p<.01).

Adolescents' relationships with their fathers are particularly important in delinquency. Youths' perceptions of their fathers are related to delinquent behavior. In a comparison of 30 delinquent boys and 30 nondelinquent boys, Medinnus (1965b) found that delinquent boys perceived their fathers as more rejecting. Also, Rice (1987, p. 285) found that fathers of male and female delinquents were more cold and rejecting them than those of nondelinquents. Johnson (1987) found that, in a sample of 734 high school sophomores, distance from father is more predictive of theft, vandalism, and assault than is distance from mother. Father serves as the prime teaching and deterrent force in the family through his roles of value transmitter and disciplinarian. Presumably, a more distant father would be less effective in fulfilling these functions.

Rutter (1982, p. 18) emphasizes that warmth is a vital element in all kinds of family relationships, and that where warmth in the family is lacking, the child is more likely to develop deviant behavior, particularly of an antisocial type. Carson, Butcher and Coleman (1988, p. 243) also argue that severe parental rejection and lack of parental affection are the primary causes of antisocial personality. Families of antisocial children are characterized by harsh discipline and little positive parental involvement with the child. For several-hundred grade school boys, the parenting practices and family interaction accounted for 30-40% of the variance in general antisocial behavior (Patterson, De Baryshe & Ramsey, 1989, p. 330).

Besides, rejection has been implicated directly and indirectly in the etiology of acting-out and vandalism (Schulman et al., 1962) and found repeatedly in the family background of drug and alcohol abusers (Rohner, 1986, p. 69). Barnes (1984) found parental nurturance and the ability of the parents to function as a support system for the adolescent to be important factors in preventing heavy drinking by adolescents. Brook and Brook (1988) interviewed 510 teenagers and their mothers and found that a lack of maternal and paternal affection was associated with greater alcohol use. Lee and Goddard (1989, p. 302) found lack of parental affection, concern, involvement and modeling to be central factors in the family's influence on drug abuse. The likelihood of drug abuse increases when parental control is not

accompanied by warmth or when parents show indifferences and rejection (Halebsky, 1987; Rice, 1987, p. 319). Drugs become a means of finding security, comfort, or relief. Jurich and others (1985) argue that drug abusers are not as close to their parents and are more likely to have negative adolescent-parental relationships.

Most initial experiences with alcohol, illicit drugs, stealing, and vandalism take place during the middle grades. For example, according to the *Youth Survey* (Search Institute, 1984), though 90% of young adolescents judged stealing to be wrong, 20% of them reported stealing during the last 12 months, 27% committing vandalism, 60% cheating on a test, 13% using marijuana, and 22% of fifth graders and 53% of ninth graders drinking alcohol. Retrospective reports of graduating seniors in 1986 (Jackson & Hornbeck, 1989, p. 833) indicated that the initial use of cigarettes was begun by 53% prior to 10th grade, for alcohol 55%, and for marijuana 26%. For illicit drugs, about 50% of the eventual users (those who had used drugs by the end of 12th grade) initiated use prior to 10th grade. Gonzalez (1989) reported that, among 4,202 university students, 14% started drinking in elementary school and 34% started in middle school.

These facts are alarming because of the compelling evidence that drug use in early adolescence is a critical factor in substance abuse during late adolescence and adulthood. The younger the age of initiation, the more likely an individual is to develop a serious substance abuse problem (Jackson & Hornbeck, 1989, p. 834). Also, substance abuse during adolescence is strongly associated with other problem behaviors such as delinquency and deviant attitudes (Newcomb & Bentler, 1989, p. 243).

Interpersonal Relations

Parental acceptance and affection have also an important effect on their children's emotional responsiveness. According to Staub (1978, p. 72), having the experience of a benevolent environment, one that treats them well, children are more likely to be benevolently oriented toward their environment and people in it, to assume that other people are kind rather than unkind, to desire contact with others rather than to avoid them.

However, as Rohner (1980, 1986, p. 83) argues, seriously rejected children have not learned how to give love because they have not known loving parents after whom they may model their own behavior, and even though they crave affection they have difficulty giving or accepting it. In order to protect themselves from further emotional hurt, rejected children tend to withdraw emotionally, to make fewer bids for positive response, to enclose their emotions. Ultimately, they may stop trying to get positive responses from the people who are most important to them, but through it all they maintain an often unrecognized and sometimes vehemently denied with or yearning for love. In this way, rejected children may become emotionally insulated, unable to form warm, intimate relations with others freely and openly. Their attachments tend to be troubled by emotional constriction or defensiveness, and in extreme cases they may become apathetic or emotionally flat. Even though rejected or emotionally abused children may want to reach out to others, they are often unable to form fully satisfying social relations with their peers, and so their already damaged sense of self-esteem is reinforced, and they may withdraw even further into themselves. Rice (1987, p. 234) said that low self-esteem has been found to be a factor in poor social adjustment. Adolescents with low self-esteem more often develop feelings of isolation. They desperately want others to like them, but because they are less likely to feel they have likable qualities, they are less likely to consider themselves well liked and respected and so isolate themselves socially. Carson, Butcher and Coleman (1988, p. 243) argue that when parents are cold and distant toward the child and allow no warm or close relationship to develop, the child who imitates this parental model becomes cold and distant in later relationships.

The relationship between parental warmth and emotional responsiveness is clearly demonstrated in the literature. Emotional responsiveness refers to the ability of a person to form warm and intimate relationships with others (Rohner & Nielsen, 1978, p. 21). People who are emotionally unresponsive are restricted in their ability to become involved in lasting and affectionate relationships. They often have strong needs for affection but are unable to return it, thus their relationships with others are likely to be distant and impersonal. Institutionalized children, as well as severely emotionally deprived children, are often reluctant

or unable to become involved with other people (Rohner, 1975). Rohner (1986, p. 86) said that rejected children and adults tend to be less emotionally responsive than persons who were accepted in childhood. In a sample of 764 American children, 7 through 11 years old, Rohner (1986, p. 96) found that parental rejection was positively correlated with children's emotional unresponsiveness ($r = .47$, $p<.001$). Search Institute (1984, p. 70) found that about 15% of young adolescents experience social alienation or estrangement from others. They tend to have low self-esteem ($r = .45$), experience a high degree of peer pressure toward deviance ($r = .31$), and are prone to antisocial behavior ($r = .21$) and thoughts of suicide ($r = .29$). There may be no greater risk for a young adolescent than to be without a meaningful social network, for it is partly through this network that he or she begins to acquire life-affirming values. Search Institute (1984) also found that social alienation is related to low parental nurturance, low family closeness, high authoritarian control, and high coercive punishment. These family patterns may fail to equip a child with the confidence and skills necessary for connecting with others outside the family unit. Using retrospective data from 207 elderly women, Andersson, Mullins and Johnson (1987) found that too much control or parental neglect in childhood could lead to social isolation later in life. Also, Calabrese (1987) argued that the alienated adolescent is prone to suicide, abuses drugs and alcohol, and rejects the norms established by family, school, and society in general.

World-View

World-view is a person's often unverbalized, global, or overall evaluation of life and the universe as being basically good, secure, pleasant and happy, or as being bad, insecure, unpleasant or threatening (Rohner & Nielsen, 1978, p. 22). Therefore, world-view does not refer to an empirically derived knowledge of the economic, political, social, or natural environment in which one lives.

According to Rohner's (1986) theory, one's psychological construction of reality or image of life and of the world seems to be shaped to a large extent through childhood experiences in the home, especially experiences of acceptance and rejection. Rejected children

who experience great psychological hurt at the hands of their parents are likely to be insecure, angry, emotionally unresponsive, and to devaluate their feelings of self-esteem. They are likely to generalize these feelings onto the nature of the world. It is a small step for them to attribute these painful family experiences and internal feelings to the very essence of life and the universe. In the view of many rejected children, the world is, in its essential nature, an unfriendly, hostile, unpleasant place in which to live. They often expect little more from life itself. The very nature of life for them is apt to be threatening, dangerous and unhappy. They develop a negative world-view that, once established, often bullies them throughout life. This view seems to derive from the fact that the interpretations children make about the world are based on their own experiences with it, both experiences they have had as individuals and experiences they know or believe others to have had. An individual's world-view extends this interpretation about the empirical world, including interpretation of the experiences he has had at the hands of the people who are most important to him, to an interpretation of the very nature of the world.

Little research has been directed to the relation between parental acceptance or warmth and world-view. Rohner's (1975) study showed that adults who were rejected as children tend to have a more negative world-view than adults who had been accepted as children. In a sample of 764 American children, Rohner (1986, p. 96) found that parental rejection was positively correlated with children's negative world-view ($r = .44$, $p < .001$). Finney (1961) found that mothers who were not nurturant produce pessimistic children. He argued that the child's repeated lack of reinforcement of his drives may generalize to a widespread expectation of lack of reward in life. This is consistent with the findings of Erikson (1963) and Symonds (1938).

Adult Personality

According to Rohner's (1986, p. 86) theory, in the absence of positive, counteracting experiences over time (such as rewarding peer relations), rejected children are likely to mature into adults who are hostile and insecure, who have feelings of negative self-esteem, who have

a negative worldview, and who are emotionally unstable.

Although less work has been done with adults' retrospective recollections of parenting than with children's reports, Rohner (1986, p. 105) found in an American sample of 147 adults that parental hostility, one of the principal expressions of overall rejection, is related significantly to the same cluster of personality dispositions in adults as overall rejection is for children. That is, of adult personality dispositions, parental hostility has been positively correlated with emotional unresponsiveness ($r = .33$, $p<.001$), with hostility and aggression ($r = .44$, $p<.001$), with negative self-esteem ($r = .46$, $p<.001$), and with negative world-view ($r = .24$, $p<.01$). Moreover, these adults are likely to have strong needs for affection, but are often impaired in their ability to accept affection or to return it because many of them have become more or less emotionally insulated or unresponsive to potentially close interpersonal relations. Any of these rejected adults who become parents are therefore expected to reject their own children significantly more often than parents who were accepted as children. In this way the rejection cycle is apt to be perpetuated.

Therefore, the source of this derailed parent-child interaction lies in the parents' own earliest childhood experiences. It is commonly assumed that most, if not all, molding of behavior and outlooks occurs in the first decade of life. Consequently, parental behavior is seen as reflecting early life experience and is expected to remain fairly stable throughout the adult years. The unconscious memories of what it was like as a child and how one was cared for become the most powerful determinants of later parentng behavior.

Parents who abuse their children tend to have had a seriously disturbed upbringing themselves, often associated with neglect and rejection. As Kempe and Kempe (1978) said, "exactly like their children, abusive parents were brought up with images of themselves as bad, worthless, and unlovable"(p. 15). They were brought up to distrust an uncertain, unforgiving world where joy, approval, and affection either did not exist or deteriorated into anger and punishment. We have rarely seen an abusive caretaker who does not give a history of abuse or neglect during the earliest years of his life. The most consistent feature of the histories of abusive families is the repetition, from one generation to the next, of a pattern of

abuse and neglect (Kempe & Kempe, 1978, p. 12). Indeed, it is commonly argued that there is an intergenerational transmission of family violence--that it runs in families (Hagestad, 1984). The same phenomena have often been found empirically among child abusers in the U.S. (Parke & Collmer, 1975). That is, a large proportion of parents who reject or abuse their children are themselves abused, neglected, or deprived of warmth and affection in childhood. At least half of abusive parents are known to be themselves maltreated as children (Carson, Butcher & Coleman, 1988, p. 114; Rutter, 1982, p. 199; Starr, 1988, p. 128). The deprivation is essentially a lack of empathic care, an emotional deprivation. Kempe and Kempe (1978, p. 12) emphasize that emotional abuse plays some role in all abuse and neglect. It is out of the great pool of neglected and abused children that the next generation of maltreating caretakers develops, although not all children subjected to maltreatment become abusive parents. Hayes (1989, p. 3) argues that parent neglect is the primary force promoting the evolution of today's disturbed child, and goes on saying that:

> Those children who have not experienced a nurturing relationship with a parent often do not have the capacity to nurture. The result is a destructive domino effect that can wreak havoc for generations (p. 142).

It is refreshing to find in Lamb's (1981) paper that "...the best adjusted adults are those who, in childhood, had warm relationships with effective mothers and fathers"(p. 24).

E. Coping with Parental Rejection

It seems clear that parental acceptance or warmth is a potent force shaping human behavior. Nonetheless some children are less affected by parental rejection than are other children. In fact, some children seem to be able to avoid or overcome to some degree the most deleterious effects of parental rejection and emotional abuse. Perhaps 20% of rejected children manage to cope more effectively with perceived rejection than do most children (Rohner, 1986, p. 129). However, these children are not invulnerable. All rejected children hurt, but some manage to deal more effectively with the hurt than others. Three personal factors are known to help rejected children cope: sense of self, self-determination, and the capacity to depersonalize (Rohner, 1986, pp. 130-136).

Sense of self refers to children's relative awareness of their own individual personhood (Rohner, 1986, p. 131). Because a sense of self is probably one of the factors allowing children to rely on themselves as a primary referent in psychological functioning, children with a more clearly differentiated sense of self are less affected by negative messages from a rejecting parent than are those with a less clearly differentiated sense of self. In other words, the differentiated child seems able to function psychologically with greater degrees of separation from others. Steele (1982, p. 486) described them as having constitutionally "stronger egos". On the other hand, children who have trouble maintaining their own sense of individuality and who have difficulty recognizing the individuality of other family members are probably those who experience great difficulty coping with parental rejection.

One important element in the development of children's sense of self is the development of a sense of having personal control over important life events (Maccoby, 1980). Children vary in the degree to which they believe they have control over their lives or over significant events that happen to them. Some believe they have at least some control over what happens to them through their own behavior. Others feel they have no control over their lives. The psychological world of children who believe they can do nothing to alter their parents' attitudes and behavior is very different from the psychological world of those who think they can at least sometimes change things. The former are likely to experience a greater sense of hopelessness, and they may be more likely to give up.

The ability to depersonalize is dependent on the ability of perspective-taking, decentering, or role-taking--the ability to see things as others see them (Rohner, 1986, p. 134). People who are unable to depersonalize tend to interpret interpersonal encounters, and even accidental events, as having special and direct reference to themselves, usually in a negative sense. The capacity to depersonalize allows children to process hurtful family interaction psychologically in a more benign way. If children can understand why their parents feel or act the way they do, they may be better able to cope with rejection.

Situational factors also seem to be implicated in the process of coping. One of them is that the likelihood of children being able to cope effectively with rejection is enhanced if a

warm, alternative caretaker is available to the rejected child (Rohner, 1986, p. 137; Steele, 1982, p. 486). The presence of an accepting caregiver in a child's life seems to be an important factor moderating the outcome of rejection. Garmezy (1981) suggested that "adaptive stressed children seem to have enjoyed compensatory positive experiences outside the family, and a bond with some supportive surrogate figure(s)" (p. 248). In a similar vein, Rutter (1982) reported that even in highly discordant and unhappy homes, a relationship with one of the parents marked by a high level of warmth appears to protect the child to a large degree.

All of these personal and situational factors seem to help provide psychological shields against the more corrosive effects of parental rejection. A full understanding of the coping process is probably to be achieved within the multivariate framework of a person-in-context.

F. Father's Influence on Adolescent Personality Development

A vast body of literature on socialization focused nearly exclusively on maternal influences (Lamb, 1975). About two decades ago the psychological literature contained few pieces on fathers and fathering. The father was "the forgotten parent" or "the second-class parent". In traditional families in which fathers are employed full time, fathers generally had only a very minor commitment to the day-to-day responsibilities of child care, and the area in which fathers were most highly participant was play. For example, in 1970s in U.S., fathers' attendance at birth of their children was 27%, their availability at home when their children were awake was about 25 hours a week, time spent on child care was 2 hours per week, and time spent in play with their children was about 9 hours per week; whereas mothers spent 14 to 20 hours per week in play with children, and they were available at home for 63 hours a week (Russell & Radin, 1983, pp. 140-143).

As we enter the 80s, there has been a growing consensus that an increased male role in child-rearing is desirable for children, for women, and for men themselves. This consensus derives from a new awareness of the role of fathers in child development, based on new attitudes toward sex roles, increasing stresses on the nuclear family, and the emphasis on the

quality rather than the quantity of the interaction (Lamb, 1981, pp. 4-6, 1986; Weinraub, 1978).

Parenting is a difficult and demanding job. Two parent families are preferable to single-parent families in many ways. Two parents are better able than one to meet the full range of the child's physical, emotional, and intellectual needs. Differences between parenting behaviors may often complement each other. As long as the parents' behaviors are not conflicting, they may serve to enhance the child's social and cognitive development. For parents, as well as for children, two parent families are often preferable because they conform to current societal notions of what is normal and acceptable. By satisfying each other's emotional needs, two parents not only serve as models of adult-adult interactions, but also enable each other to be free, to be more sensitive and responsive to the child's emotional needs. Even though the father spends relatively little time with his child, he, as a second parent, not as a subordinate or second-class parent, and as complement to the mother, makes a substantial contribution to the child's development.

The single-parent family, which is typically one with mother as the head, runs the risk of rejecting the child--more so if she is socially isolated with two or more children. Social isolation is a more significant risk factor in maternal behavior than absence of the father. The child abuse literature (for example, Kempe & Kempe, 1978) repeatedly suggests that one of the significant risk factors associated with child maltreatment is the isolated parent's sense of loneliness and alienation from the surrounding community and other possible sources of social and emotional support. The voluntary presence of fathers in households is a significant predictor of greater acceptance toward children in part because fathers can relieve mothers of the burden of continuous child care (Rohner, 1975). The relation between importance of father as a major caretaker and parental acceptance was examined by Rohner (1986, p. 61). In a sample of 186 societies, he showed that paternal warmth was correlated worldwide with importance of fathers ($r = .57$, $p<.001$); paternal indifference was negatively correlated with father's importance ($r = -.51$, $p<.001$), that is, the more important fathers are as caretakers, the less indifferent they are and the more children are likely to be accepted. Also,

the relative presence of fathers in households was correlated positively with parental acceptance. That is, parental acceptance increases insofar as the fathers are maximally available in the households. However, the fathers are effective caretakers only to the degree that they are willing caretakers. Fathers who are involuntarily confined at home may resent being there and having to deal with their children.

Although mothers are the preferred and more involved parents, fathers and mothers represent different type of interactions and experiences in children's lives. From infancy, fathers engage in physically stimulating and playful interactions, whereas mothers engage in conventional play and are more responsible for caretaking (Lamb, 1981, p. 14). Fathers tend to be more concerned with sex-typing than mothers. Differences in parental response to girls and boys increase as children grow older (Clausen, 1980). Fathers are more directly involved in the rearing of sons than that of daughters, expect their sons to be different, and treat them differently as well (Parke, 1980; Ross & Taylor, 1989), because fathers believe that mothers should be responsible for the socialization of daughters (Lamb, 1981, p. 15). According to Bigner (1979, p. 42), Power and Shanks (1989), and Weinraub (1978, p. 118), whereas fathers are perceived by their children and by themseves as instrumental (controlling, rigid, demanding, and administrative), mothers are seen as expressive (warm, nurturant, and supportive). Also, Rohner and Nielsen (1978), reviewing research related to differences in maternal and paternal behavior, found that mothers are consistently perceived as warmer than fathers.

Even if fathers are more concerned than mothers about adherence to conventional sex roles or mores, both parents obviously affect their children's development. Although studies of differences between maternal and paternal roles help to identify their effects on children's development, one must not lose sight of the similarities nor exaggerate the differences. The similarities may be more important than the differences in explaining the critical role of the father.

Research by scholars such as Biller (1974), Lamb (1981, 1986), and Parke (1981), among others, points to the effects of fathers on children's cognitive, socio-emotional, moral,

and sex-role development. However, in this section, fathers' influence in terms of their acceptance and warmth has been reviewed only on adolescents' socio-emotional and moral development.

The father's acceptance contributes strongly to the development of the child's self-esteem. Sears (1970) found a relationship between mother-reported paternal warmth and a questionnaire measure of sixth-grade boys' self-esteem. Mussen and others (1963) presented data indicating that adolescent boys with unaffectionate relationships with their fathers were particularly likely to feel rejected and unhappy. Boys whose fathers are involved and nurturant have been found to be better adjusted and more socially competent (Radin & Russell, 1983). A male who has adequate opportunities to observe a nurturant father can imitate his behavior and develop positive personality characteristics. The unnurturant father is an inadequate model, and his consistent presence appears to be a detriment to the boys' personality functioning. To put it another way, the boy with an non-nurturing father may be better off if his father is not always available. This is consistent with evidence that suggests that father-absent boys often have better personality adjustments than do boys with ineffectual fathers (Biller, 1974).

Father also plays an important role in a girl's personality adjustment. Females who perceived their fathers as having been very nurturant during childhood scored high on the personality adjustment measure, whereas subjects who perceived their fathers as having been rejecting scored very low (Biller, 1982, p. 717). Data from a number of studies (Biller, 1982) indicate that high paternal expectation in the context of a warm father-daughter relationship are conducive to the development of autonomy and independence among females, and that the females who are the most well adjusted grew up in homes with warm fathers.

The warmth and sensitivity of paternal behavior determines the security of father-child attachment relationships and, as in the case of mothers, secure relationships foster the ability to relate positively to others (Lamb, 1981, p. 23, 1986). Paternal warmth is also associated with psychosocial adjustment of children.

Nurturant fathers foster altruism and generosity, and paternal reliance on love-oriented discipline is associated with filial morality. Several studies (cf. Lamb, 1981) showed that delinquent sons often come from homes in which fathers are antisocial and hostile. In fact, poor father-child relationships are common antecedents of delinquency, and the delinquents portray fathers as lacking in affection (Biller, 1982, p. 713). Bandura and Walters (1959) reported that the relationship between delinquent sons and fathers is marked by rejection and hostility. Medinnus (1965b) obtained data suggesting a very high frequency of poor father-child relationships among delinquent boys. The subjects in his study perceived their fathers as much more rejecting than were their mothers. Holstein (1972) found that warm, nurturant fathers were likely to have adolescents who morally mature. In a sample of 160 Indian fathers of rebellious deviant children and nondeviant controls, Jain and Jain (1988) found that fathers of nondeviants extended the most love, encouragement, and acceptance compared with fathers of deviant children. The quality of the father-child relationship seems to have particular influence on whether the child takes responsibility for his own actions or acts as if his behavior is controlled by external forces. According to Biller (1982, p. 712), children who have a warm relationship with a father are much more likely to develop a realistic internal locus of control.

Studies of children who lack the fathering experience indicate that adjustment is difficult in the areas of personality and social development, and the father's absence may have a greater effect on a boy than on a girl. Boys raised without fathers are less masculine or else exhibit compensatory hypermasculinity and aggressiveness (Lamb, 1981, p. 27). They are emotionally unstable, careless of social rules, weak in ego strength or autonomy (Glassman, 1986; Gulati & Singh, 1987). Moral development also appears to be affected by father absence. Young adolescent boys without fathers obtained significantly lower moral internalization scores and were rated by teachers as more aggressive than was the case for a group of boys who had fathers (Hoffman, 1980, p. 165). Also, delinquents are more likely to come from father absent homes (Hoffman, 1981a; LeFrancois, 1987, p. 235). In girls, father absence has no discernible effect on the conscience development (Biller, 1981a; Hoffman,

1980, p. 165), but it is associated with difficulties in interaction with males (Bigner, 1979, p. 68; Lamb, 1981, p. 27). Sex differences in adjustment to divorce are striking, with boys being more adversely affected than girls. Whereas emotional and adjustment problems suffered by girls have typically disappeared within two years, those experienced by boys are often manifested in adjustment problems considerably later (LeFrancois, 1987, p. 236). Among the possible reasons are lack of a male model to imitate, perhaps mediated by the effects of the father's absence on the mother's child-rearing practices, stress associated with loss of the father, and the mother's tendency to relate less well to sons than to daughters immediately following divorce. Especially, boys are more vulnerable to the effects of stress than girls (Rohner, 1986, p. 113). Because they have a same-sex role model present, girls are spared the harsher effects of father absence suffered by boys (Lamb, 1981, p. 27).

Fathers are important socialization agents, and their absence must create an enormous gap in the child's life. Fathers bring the larger society's normative standards into the home and by identifying with them boys acquire society's standards and the motivational and control systems that assure adherence to them.

Since the characteristics acquired of the ideal parent are androgynous, rigidly sex-typed individuals of either sex may have difficulties adapting successfully to the parental role. However, three factors--conflict between the ideal parent role and the traditional masculine role, lack of easily observable modern-day successful father models, and the overidealization of the image of father ("father knows best")--conspire to make acceptance and fulfillment of the father role in our society a difficult task indeed (Weinraub, 1978, p. 121). Problems are certain to result when a father approaches his role within the traditional, instrumental concept to the exclusion of most expressive behaviors. When fathering behavior is conducted in a manner that places the man at an emotional distance from his family, the children may come to view their home, and their father in particular, as lacking in warmth. The father image may be one of stability and strength in a demanding world, but these qualities are more effectively communicated to children in a nurturant manner. Emotional aloofness of males fails to provide growing children with the security they need from the

emotionally cold, bureaucratic world of urbanized society. For the most part, the warmer, more accepting the father is, the more optimal the child's development.

In summary, the preceding review suggested that parental acceptance, as one of the major dimensions of parental behavior, has consistent effects on the behavioral and personality dispositions of children including self-esteem, helping behavior, interpersonal relations, antisocial behavior, and world-view. Paternal warmth is also associated with psychosocial adjustment of children. It was noted that without some effective coping skills and/or a warm, alternative caretaker being available, rejected children are likely to grow up into adults who will tend to reject their own children. It is thus important to be able to adequately assess degree of parental acceptance. This is the topic of the following section.

G. Analysis of Relevant Scales of Parental Acceptance

In this section, scales related to parental acceptance or warmth were reviewed as to their psychometric properties. Six scales, widely known for a long time to be most representative of the so many scales to measure parent-child relations, were analyzed in terms of variables, items, reliability, validity, its revised editions and limitations.

Parental Acceptance-Rejection Questionnaire developed by Rohner (1980, 1984) is designed to elicit respondents' assessment of their childhood experiences in terms of Perceived Warmth, Hostility and Aggression, Indifference and Neglect, and Undifferentiated Rejection (Love-Withdrawal). There are three versions for mother, adult, and child, containing 60 items each, made up of 4-response Likert-type. The child version is a self-report questionnaire where a child or adolescent between 7 and 12 years of age responds to his perceptions of the way his mother treats him. On the parental warmth scale (20 items), the parent-child relationship is characterized by warmth and affection insofar as parents are perceived to give love without qualification. Warmth and affection may be manifested verbally by praise, approval, and offers of comfort or consolation. Items designed to measure children's perceptions of parental warmth include: "My mother makes me feel what I do is important." The validity and reliabilty of the questionnaire for children was assessed on a

sample of 220 boys and girls ranging in age from 9 through 12 years, living in the metropolitan Washington, D.C. area. Subjects were approximately evenly distributed between middle- and working-class backgrounds, and they were about evenly divided by sex. There were no significant differences for age, sex, or social class of subjects on any of the child version scales. Coefficient alpha of the warmth scale on the child version was .90, and concurrent validity coefficient of the scale with Child's Report on Parent Behavior Inventory (Schaefer, 1964) was .83. Therefore, this scale has good validity and reliability data. However, the scale has been developed for the perception of mother's behavior only, even though the interview schedule for children was also developed to complement the scale in that it asks about the mother's warmth and the father's as well.

Among inventories designed to measure children's perceptions of parental behavior, the **Child's Report of Parental Behavior Inventory** developed by Schaefer (1964, 1965) is the most frequently cited and used by researchers (Jacob & Tennenbaum, 1988, p. 58). The inventory is comprised of three factors (Love, Firm Control, and Lax Control), 26 scales of 260 items with ten items for each scale about child-rearing practices. The mother-form of the inventory is identical to the father-form, with changes made only to appropriate pronouns. The child indicates whether his or her parent is *like*, *somewhat like* or *not like* each of the items described. The sample item from the scale for emotional support is (My mother) "makes me feel better after talking over my worries with her." The inventory was administered to a group of seventh graders (85 boys and 80 girls) and to a group of 81 delinquent boys to get validity and reliability data. Internal consistency (KR-20) of the 26 scales ranged from .60 to .90, and the median reliability of scales that were chosen to sample the love dimension was .84. Normal boys and girls and delinquent boys reported mothers as more nurturant and indirectly controlling than fathers, but delinquents described fathers as significantly less positive and less loving than normal group. Also, it was found that while normal group reported very similar behavior for mother and for father (for example, the correlations were .76 on expression of affection, .74 on emotional support, .86 on strictness, and .79 on rejection), parents of delinquents had a less unified policy in their behavior with

their children (for example, the correlations on the scales corresponding to those for normal group were .40, .32, .46, and .59 respectively). Various investigaters have revised the original 260-item instrument into shorter versions that retain the original conceptual foundation as well as many of its scales and items. Schuldermann and Schuldermann (1970) developed a shortened version of 18 scales with five or eight items per scale, and Raskin and others (1971) used a shortened 90-item version to measure memories of parental behavior by normal and depressed, hospitalized patients. Margolies and Weintraub (1977) published results of the shortest version of the inventory. This instrument consisted of six scales, 56 items, and the test-retest reliabilities of the scales ranged from .66 to .93 at 1-week interval. Kawash and Clewes (1988) shortened this form further to yield four items per scale, using the shortened 108-item version developed by Schuldermann and Schuldermann (1970). Openshaw, Thomas and Rollins (1984) designed the most recent version of 80 items to measure a wide variety of parental behaviors, among which were support and induction, but there was no information on the goodness of the test.

The Parental Attitude Research Instrument developed by Schaefer and Bell (1958) consists of twenty three 5-item scales based on three factors such as Controlling-Authoritarian, Hostility-Rejection, and Democratic-Equalitarian. The 115 items are general opinions about family life with which the subject (mother) is asked to *strongly* or *mildly agree* or *disagree* on a 4-point scale. The sample item from the scale for equalitarianism is "Children should be allowed to disagree with their parents if they feel their own ideas are better." The normative sample was 60 multiparae and 60 primiparae wives of military personnel who were given the test 1 to 4 days following delivery at a military hospital. The reliability coefficients (KR-20) of the 23 scales ranged from .34 to .77 for a primiparae group, and from .40 to .77 for a multiparae group. Test-retest reliabilities at 3-month interval, which were calculated for 60 student nurses who were highly homogeneous in age, education and socio-economic background, fell in the .18 - .79 range. The correlations of education with attitude for the scales which state disapproved attitudes toward child-rearing ranged from -.03 to -.38 for primiparae with a mean of -.24, and from -.03 to

-.52 for multiparae with a mean of -.27. That is, mothers of the lower educational levels tended to have less approved attitudes toward children. Zuckerman and others (1958) factor analyzed the 23 scales using a heterogeneous sample of 413 mothers and extracted the same three factors as those found by Schaefer and Bell (1958). Zuckerman (1959) prepared a parallel form with items reversed in meaning. Chorost (1962) constructed a 115-item inventory along two child-rearing dimensions such as Control dimension comprised of 10 subscales and Warmth dimension of two subscales. The same items were applicable for both mothers and fathers. Davids and others (1963) constructed a short form of the test consisting of 30 items indicative of maternal attitudes regarding family relations and child-rearing practices. Schuldermann and Schuldermann (1971, 1974) revised the test to select items with the lowest response set bias. A factor analysis of the mother's form (115 items) revealed two factors: Authoritarianism and Family Disharmony, while the revised father's form (100 items) revealed these two factors: Paternal Dominance and Male Autonomy. Using data of a sample of 98 French-Canadian mothers (mean age = 32 years), De Man, Balkou and Vobecky (1985) analyzed the factorial structure of a French version and had the same three factors as the English original: Authoritarian-Control, Hostility-Rejection, and Democratic Attitudes. Generally, this instrument for adult women has low reliability and there are two limitations to the representativeness of the sample: (a) the selection of the occupational group, and (b) the possibility that the expressed parental attitudes may have been influenced by the recency of childbirth.

The Cornell Parent Behavior Inventory, developed initially by Bronfenbrenner and Devereux (Straus & Brown, 1978), consists of two factors: Expressive (Support) factor of 10 variables including Affection and Nurturance, and Instrument (Control) factor of 10 variables including Power, Punishment and Neglect. The inventory was designed for adolescents who are asked to indicate the extent to which their parents treat them as they are growing up. Each of the 20 variables is represented by five items, and each is answered twice, once for the father and once for the mother. The response alternatives for each item are *never*, *seldom* (once or twice a year), *sometimes* (once a month), *in most cases* (once a week), and *in every*

case (almost everyday). The sample item from the scale for parental support is "(He/She) said nice things about me." The average interitem correlations for Father Support and Control were .73 and .63, and for Mother Support and Control were .69 and .62 respectively (Thomas et al., 1974). The correlations for the subscale scores for Control and Support between parents were .65 and .55 respectively. Therefore, the father items for both Control and Support have a higher internal consistency than the Mother Control and Support items, and Support is more consistent across both parents than Control. Siegelman (1965) performed a factor analysis and other evaluations using short version of the inventory. His short version consists of 15 variables, three items for each variable. The reliabilities (KR-20) from a sample of 212 elementary school boys and girls ranged from .26 to .83 on father's form for boys, from .23 to .70 on mother's form for boys; from .55 to .88 on father's form for girls, and from .32 to .75 on mother's form for girls. For boys, the mean reliabilities were .58 on father's, .45 on mother's; and for girls, the reliabilities were .68 on father's, .51 on mother's. Thus, the consistency of response for father's form is generally higher than the reliabilities for mother's. The average correlation between mother and father responses was .51 for boys and .48 for girls. In mean comparisons between boys and girls, both of them perceived mothers as more loving and nurturant than fathers. In addition, three factors such as Loving, Punishing and Demanding were extracted from factor analysis. An 11-item short form called the **Cornell Socialization Agent Inventory** was developed by Devereux and others (1974). This version is modified so that it provides descriptions for teachers and peers as well as for parents. It therefore permits a comparison of the extent to which the various types of socialization behaviors are practised by mother, father, teacher, peer group, or other agents of socialization. Thomas and others (1974) developed the shortest version of the inventory based on two factors each measured by four items. Test-retest reliability coefficients at 17-day interval were obtained from a group of 22 high school girls. The stability coefficients for the mother support items ranged from .66 to .81 with a mean of .75, and for the mother control items, they ranged from .51 to .63. The stability coefficients for the father support items ranged from .71 to .89 with a mean of .80, and for the father control items, they ranged

from .46 to .75 with a mean of .62. Thus, father support and control is more stable than mother support and control, while support is more stable than control for both father and mother. The internal consistency coefficients for mother support ranged from .18 to .69 with a mean of .42, and from .14 to .50 with a mean of .27 for mother control. The consistency coefficients for father support ranged from .31 to .75 with a mean of .50, and from .14 to .54 with a mean of .34 for father control. The general pattern shows the consistency with the data from the original instrument. From the analysis of mean differences between boys and girls, using a sample of about 1,000 high school students for each group, it was found that boys consistently receive more control from parents than do girls, while the latter consistently receive more support than boys, and that the higher socio-economic status levels tend to receive more support and control, indicating a greater degree of involvement of parents with the adolescents. This instrument generally has low reliabilty based on a small sample size.

Parent-Child Interaction Rating Scales were developed by Heilbrun (1964) for adolescents to measure the following eight kinds (items) of nurturant behavior: Degree of Affection felt for subject, Degree of Affection expressed toward subject, Approval, Sharing of Experiences, Concrete Giving, Encouragement, Trust, and Sense of Security. Each item is presented with a 5-point rating scale, with each point designated by a descriptive phrase. The subjects rate father and mother for each item. The information on the reliability and validity data for the scale is not available.

Roe and Siegelman (1963) developed **Parent Child Relations Questionnaire** with 130 items to measure affectional behavior of parents and types of reward and punishment. There are two sets of items, one referring to the father's behavior and the other to the mother's behavior during the period the subject was growing up, especially before age twelve. Responses are made on a graphic rating scale ranging from *very true* (5) to *very untrue* (1). Each of the four subscales (symbolic-love reward or punishment, direct-object reward or punishment) referring to type of reward and punishment contains 10 items, and each of the six subscales (loving, protecting, demanding, rejecting, neglecting, or casual) referring to affectional behavior contains 15 items. A sample item is "My mother objected when I was late

for meals." A factor analysis identified three factors: Loving-Rejecting, Casual-Demanding, and Overt Concern. Reliability of the various subscales was reported to range from .69 to .90 (Touliatos, Perlmutter & Straus, 1990, p. 388). The original authors developed a 50-item short-form in 1979. LaVoie and Looft (1973) adapted the loving scale to measure parental warmth, and Hower and Edwards (1979) constructed 40-item scale modeled after Parent Child Relations Questionnaire.

From the foregoing review, one conclusion should be clear: Most existing measures have limitations regarding psychometric qualities. Family assessment instruments often include a variety of subscales purporting to assess particular concepts. In many cases, however, a convincing case has not been made for the statistical independence of these component scales, a case that, in turn, requires one to question the conceptual differences. For example, the **Family Assessment Measure**, the most recently developed by Skinner and others (1983), posits seven dimensions of family functioning, but the intercorrelations among most scales are substantial ranging from .25 to .82. There are still a surprising number of tests that are published without reliability or validity evidence. Only two rating scales, using reports of parents' behavior in relation to their children, of 1,409 tests listed in the *Ninth Edition of Mental Measurement Yearbook* (Mitchell, 1985), new or revised since the *Eighth Edition* (Buros, 1978), and of 2,672 test entries listed in *Tests in Print III* (Mitchell, 1983), are the **Iowa Parent Behavior Inventory**(1977) and the **Situational Parenting**(1980), which have no validity data. Mitchell (1984) says, providing some negative evidence on the quality of the tests listed in the *Eighth Mental Measurement Yearbook* (Buros, 1978):

> 22% of the tests were without any reliability data whatever, 8.5% had no validity data whatever, 7% had neither reliability nor validity data, and an additional 1% had neither validity nor reliability data for certain parts, levels, or editions. Another 5% had no reliability data for certain scores, and 9% had no reliabilty data for certain grades, subtests, or forms. Altogether, some 41% of the tests were lacking reliability and/or validity data in some important respect (p. 114)

From this analysis, it seems that there is a surprising scarcity of psychometrically sound, well-researched instruments on reports of parent-child relationships. According to Jacob and Tennenbaum (1988, p. 169), this clearly indicates the absence of programmatic empirical and theoretical effort directed toward such developments, notwithstanding the key

role that parent-child relationships have played in the theories of child development.

It is obvious from the preceding that there is lack of psychometrically sound scales to assess parental acceptance. In the area of test development, there has been an increasing interest in theory, which is shown by the extensive use of construct validation. Thus, the following sections review details regarding construct validity.

H. History of Construct Validity

During the past 40 years or so, psychologists have been actively refining the research and the techniques of test development and, in the process, paying increasingly more attention to validity. On the side of theory, a great deal of attention has been paid to construct validity. Construct validity has been of special relevance and interest in the assessment of personality. However, construct validation is as important for the measurement of school outcomes as of constructs in personality or human abilities. Haertel (1985, p. 23) argued that a multifaceted inquiry is called for, bring both psychological theory and empirical findings to bear upon the meaning of achievement test performance. Construct validation of personality tests has been largely related either to comparing correlations with existing scales or to treating it in much the same manner as content validation. The latter is specially true about those who are opposed to construct validity (e.g., Bechtoldt, 1959; Brodbeck, 1963). Most psychologists, however, showed a growing concern over psychological interpretation of tests. This concern began as early as 1951 with Cureton (1951) and Peak (1953).

Although the general notion of construct validity has been around for some time, particularly in personality assessment, it was first given formal recognition as a separate or independent type of validity in 1954 by the American Psychological Association in its *Technical Recommendations*. Prior to this, the concept of construct validity was referred to under various labels, including trait validity, factorial validity and statistical validity. A quote from Cronbach and Meehl (1955) best summarizes the early articulation of this conceptualization:

> Validation of psychological tests has not yet been adequately conceptualized, as the American Psychological Association Committee on Psychological Tests learned when

> it undertook (1950-54) to specify what qualities should be investigated before a test is published. In order to make coherent recommendations, the Committee found it necessary to distinguish four types of validity, established by different types of research and requiring different interpretation. The chief innovation in the Committee's report was the term construct validity. This idea was first formulated by a sub-committee studying how proposed recommendations would apply to projective techniques, and later modified and clarified by the entire committee. The statements agreed upon by the Committee were published in the *Technical Recommendations...* (p. 281)

The American Psychological Association's definition was as follows: "Construct validity is normally studied when the tester has no definitive criterion measure of the quantity with which he is concerned and must, therefore, use indirect measures. Here the trait and quality underlying the test is of central importance rather than either the test behavior or the score on the criteria" (1954, p. 14).

This rather vague and imprecise definition of construct validity was elaborated upon by Cronbach and Meehl (1955). They described construct validation as being involved whenever a test was to be interpreted as a measure of some attribute which was not otherwise operationally defined. They, however, continued to describe construct validation as the process of assessing the validity of the nomological network of the constructs and connectors within a theory either as a whole or of the propositions from which the inference was derived.

Campbell (1960) offered two kinds of construct validation for consideration. The first of these was consistent with the approach by Peak (1953), Cronbach and Meehl (1955) which they labelled "nomological validity." The second type of construct validation was equivalent to the older, trait validity which was of interest to the investigators in the area of personality assessment where an *apriori* defining characteristic was not available. Instead, the investigator had to seek some independent measure which, Campbell (1960) stated, was not a true criterion and the validity of both measures was determined by the agreement between the two measures and not by the underlying theory as in the case of "nomological validity."

Loevinger (1957) further extended the scope of construct validity to include content and predictive validities also. To her, construct validity had three components: (a) *substantive*, (b) *structural*, and (c) *external*. The *substantive component* is similar to content validity and, in general, appears to be assessed by rationally examining the validity of the

sample content, response specifications or what the subject is required to do and the semantic adequacy of the title of the test (Cronbach, 1971). In Loevinger's (1957) words, the substantive component is "the extent to which the content of the items included in the test can be accounted for in terms of the trait believed to be measured and the context of measurement" (p. 661). In the substantive component, items are included in the original pool on the basis of judged relevance to a broadly defined domain but are selected for the test on the basis of empirical response consistencies (Messick, 1989, p. 43). In other words, the initial item pool is deliberately expanded beyond the domain specially relevant to the target construct theory at issue to include items relevant to competing theories of that construct, if possible, as well as items relevant to other constructs. Item responses are then obtained and analyzed, and test items are selected from the pool on the basis of empirical properties that conform best to an appropriate structural model of the domain. Unlike traditional content validity, the substantive component requires response analysis.

There are several methods available to establish the substantive validity of a pool of items. They range from the simplest to the most complex. The simplest is to sort items into groups based upon high agreement between judges. The more complex methods include the Kruskal-Shepard's (1964) *nonmetric multidimensional scaling technique* and Wiley's (1967) *latent partition analysis*. In these two methods, the judges must be specially trained in order to understand the complex and time-consuming task entrusted to them. This represents a serious limitation, especially if they are to be used in field settings. A judge can easily render the results meaningless if he does not understand what he is asked to do. The technique also requires a highly sophisticated background in scaling theory and computer facilities for a proper interpretation of the results.

The *structural component* includes concepts such as the nature of the relationship between the subjects' responses, functional unity or homogeneity and is based on the premise that persons who scored high on one indicator of a construct ought to score high on another indicator of the same construct. This characteristic is referred to as convergence of indicators. That is, the structural component is concerned with the internal structure of the substantively

established scales, which means the degree of interitem structure. The underlying notion is that if a scale has construct validity, it must be reliable. To put it in the converse order, if a scale is reliable, it must measure something--presumably that construct which the judges had agreed upon. This can be represented by any of the following: Loevinger's (1948) coefficient of homogeneity, Hoyt's (1941) reliability through analysis of variance, Cronbach's (1954) coefficient alpha, and internal consistency through KR-20 or 21 (Kuder & Richardson, 1937).

The *external component* is equivalent to criterion-related validity and includes nontest behavior such as factor patterns, relation to other tests and intercorrelations with external criteria. The method of assessing this component includes the same concepts and procedures as are normally used in studying criterion-related validity. The difference is that with Loevinger's model, the construct and the underlying rationale are of utmost importance in predicting, that is, predictions are based on logic, while in the traditional sense, the correlation of the item with the criterion is of central importance, whether the relationship is logical or not. There are two approaches appropriate for assessing criterion-related validity of a scale--correlational techniques and analysis of variance. The former refers to the extent to which the test's relationships with other tests reflect the expected high, low, and interactive relations implied in the theory of the construct being assessed. Thus, the meaning of the test scores is substantiated externally by appraising the degree to which empirical relationships with other measures, or the lack thereof, are consistent with that meaning. However, analysis of variance method is easily used, because an observable criterion is usually not available. It is to make logically justifiable predictions using the underlying theory, and then to see whether the predictions are substantiated by data on contrasting groups.

This integrative effort assayed by Loevinger (1957) in the three major parts has quite recently been emphasized and elaborated again by Messick (1989, pp. 42-45). Also, Handley (1973) demonstrated the contribution made by these three components of construct validity when employed systematically in test development.

Although specific procedures play an important role in the demonstration of construct validity, the more important priority, quite recently, has been put on the research design

(Schoenfeldt, 1984). Messick (1981) discussed research models for construct validation and Embretson (1983) presented a new approach to it. A paradigm shift from functionalism (explaining causal relationships) to structuralism (explaining performance from the systems and subsystems of underlying processes) in psychology has permitted two types of research to be separated (Embretson, 1985).

Construct representation is concerned with identifying the theoretical mechanisms that underlie item responses, such as information processes, strategies, and knowledge stores. Construct representation refers to the relative dependence of task responses on the processes that are involved in performance (Embretson, 1985, p. 180). It is a research phase of the construct validation process. The item specifications are truly considered a theory of a task, and the theory is tested by estimating the quantitative properties of the item (such as difficulty) with respect to theoretical constructs. Nomothetic span is concerned with the network of relationships of a test score with other variables. Construct representation research is concerned more with task variability than subject variability, and shares some features with Loevinger's (1957) substantive and structural components of validity. Nomothetic span, on the other hand, is somewhat similar to Campbell's (1960) nomothetic validity in that it concerns correlations with other measures.

I. Definition of Construct Validity

Early recognition of the usefulness of constructs in testing came partially as a result of the analyses undertaken for identifying the factorial structure or composition of the variables. For those variables which were not operationally defined, for example, ego strength, anxiety, etc., interest in the underlying structure of the data forced investigators to devise new methods of analyses.

Peak (1953) proposed that the notion of nonoperationally defined terms be defined under the label "functional unity." This was similar to the results from factor analyses where the tests are grouped on the basis of some superficial criteria.

Because there was a general feeling of uncertainty concerning the nature of constructs and construct validity, Cronbach and Meehl (1955) clarified on the nature of constructs and its implications in validation of tests. They stated that constructs had three characteristics. First, it was a postulated attribute assumed to be reflected in test performance. Secondly, it had predictive properties. Thirdly, the meaning of a construct was given by the laws with the result that the clarity of knowledge of the construct was a positive function of the completeness of the theory or nomological net. Cronbach and Meehl (1955) also suggested that three sets of laws or relationships constitute a nomological network. They were the interrelations of (a) observable properties or quantities with each other, (b) theoretical constructs with observable data, or (c) different theoretical constructs with one another.

It is known that the connections or statements between theoretical constructs and observable data are often weak or incomplete. At the same time, theoretical constructs may interrelate highly with each other on some rational basis, but there may be only an indirect connection to the observable data. Cronbach and Meehl (1955) observed that when the nomological network was complete and made connections with observable data, construct validation could occur.

As stated in the *Standards* (APA, 1985, p. 9), "construct validity focuses primarily on the test score as a measure of the psychological characteristic of interest." Thus, construct validity is important whenever a test is designed to measure some attribute or construct that people are presumed to possess. Construct validity studies attempt to answer the questions: What psychological construct is measured by a test? How well does the test measure this construct? What accounts for the variation in test performance? Thus construct validity is concerned with understanding the underlying dimensions or attributes being measured through any test or observation process (Schoenfeldt, 1984). It is concerned with the trait embedded in a test, that is, the degree to which certain constructs account for performance on a test (Lemke & Wiersma, 1976, p.138). In other words, a test's construct validity is the degree to which it measures the theoretical trait or construct that it was designed to measure. Construct derives from construe, a construct is a way of construing--organizing--what has been

observed (Cronbach, 1984).

Construct validity is the evidential basis of test interpretation (Messick, 1980). It entails both convergent and discriminant evidence documenting theoretically relevant empirical relationships (a) between the test and different methods for measuring the same construct, as well as (b) between measures of the construct and exemplars of different constructs predicted to be related nomologically. For test use, the relevance of the construct for the applied purpose is determined in addition, by developing rational hypotheses relating the construct to performance in the applied domain. Some of the construct's nomological relations thus become critical when made specific to the applied setting. The empirical verification of this rational hypothesis contributes to the construct validity of both the measures and the criterion. The concept of construct validity is specially useful with reference to tests measuring traits for which external criteria are not available (Magnusson, 1967).

In opposition to the increased emphasis on content validity in educational testing, Messick (1975, 1980) argues that construct validity is as important for educational tests as for psychological tests and extends this argument for the importance of construct validity in test use further by stressing it's role in providing a rational foundation for predictive validity. Guion (1977) presents his reservations about the increased emphasis on content validity in employment testing, including his concern that expert judgements about content validity are often made too glibly. Tenopyr (1977) also says that construct-oriented strategies are really superordinate and that criterion-oriented or content-oriented strategies are subordinate. In other words, content- and criterion-oriented strategies are part of the broader construct-oriented strategy. Cronbach (1984) emphasizes that three types of validation are not to be taken as alternatives and that "all validation is one, and, in a sense, all is construct validation" (1980, p. 99). Three aspects of validity are only conceptually independent, and only rarely is just one of them important in a particular situation. A complete study of a test would normally involve information about all types of validity. A first step in the preparation of a predictive (criterion-related) instrument may be to consider what constructs are likely to provide a basis for selecting or devising an effective test. Sampling from a content universe

may also be an early step in producing a test whose use for prediction is the ultimate concern. Even after satisfactory prediction has been established, information regarding construct validity may make the test more useful. It may, for example, provide a basis for identifying situations other than the validating situation where the test is appropriate as a predictor. The latest revision of the *Standards for Educational and Psychological Testing* (APA, 1985) suggests that the three categories are simply convenient labels and rigorous distinction between them are not possible. If we turn from labels to procedures, we can see that content analysis and correlation with external criteria fit into particular stages in the process of construct validation, that is, in the process of both determining and demonstrating what a test measures.

In effect, all validation procedures contribute to construct validation and can be subsumed under it. So-called content validation and criterion-related validation can be more appropriately regarded as stages in the construct validation of all tests. This is the conclusion reached by Anastasi (1986, p. 12), Angoff (1988, p. 26), Graham and Lilly (1984, p. 43), Guion (1977, 1980, p. 385), Jones and Appelbaum (1989), Messick (1975, 1980, 1989, p. 17), and Tenopyr (1977, 1986, p.272). This unitarian argument was expressed most comprehensively as follows by Messick (1980), and supported by Hogan and Nicholson (1988) and Landy (1986, p. 1183).

> Construct validity is indeed the unifying concept of validity that integrates criterion and content considerations into a common framework for testing rational hypotheses about theoretically relevant relationships (p. 1015).

However, the applied testing field seems reluctant to highlight construct validity evidence, perhaps because the prcess of construct validation seems complicated and vague. Another reason for trepidation in pursuing construct validation is that "the process has been described as a never-ending one, as the ever-expanding development of a mosaic of research evidence where at any moment new findings or new incredible assumptions may dictate a change in construct interpretation, theory, or measurement" (Messick, 1988, p. 41).

J. Approaches to Construct Validation

Evidence of construct validity is often found in a well-developed manual accompanying a particular test or is obtained by pulling together the results of studies dealing with a particular instrument. With regard to the latter, the *Eighth Mental Measurement Yearbook* (Buros, 1978) lists over 5,000 references to the Minnesota Multiphasic Personality Inventory, which is currently the most widely used and researched objective personality inventory (Greene, 1980). Undoubtedly, the totality of this massive body of research provides much valuable information about relationships to other tests, to criteria, and (through various multivariate analytic procedures) to numerous constructs.

When first proposed in the *Technical Recommendations for Psychological Tests and Diagnostic Techniques* (APA, 1954), construct validation was characterized as a validation of the theory underlying a test. On the basis of such a theory, specific hypotheses are formulated regarding the expected variations in test scores among individuals or among conditions, and data are then gathered to test these hypotheses. Skinner (1987) emphasized the importance of "theory-driven" efforts at instrument development, noting that:

> the history of assessment has witnessed the progression from a simple rational approach with little or no empirical analyses, to an empirical strategy that largely set aside theoretical considerations until after the test was constructed, through the construct validation viewpoint which integrates theoretical formulations with empirical research... (p. 425).

To begin to gather evidence bearing on the construct validation of a particular measure, one must have a theory about the construct. Such a theory should specify propositions defining the parameters of the construct, the developmental pattern of the construct, influences to affect the construct, and other characteristics of persons high or low on the construct. Each proposition should then be tested in an investigation. Frederiksen (1986, p. 3), and Zeller (1990, pp. 255-258) presented a procedure for test development and construct validation with a concrete illustration. Also, Hopkins, Stanley and Hopkins (1990, p. 105) showed the process in brief. These steps include developing a theory and a criterion test, verifying the theory, developing a test for use in assessment or prediction, and test the construct validity of the assessment test. If the predictions are supported by the data,

construct validity is enhanced. If the predictions are not supported, there are at least three alternative conclusions that can be drawn: (a) The experiment was flawed, (b) the theory was wrong and should be revised, and (c) the test does not measure the trait (Allen & Yen, 1979, p. 108; Cronbach & Meehl, 1955).

Construct validity has served to focus attention on the desirability of basing test construction on an explicitly recognized theoretical foundation (Anastasi, 1966, p. 308). Both in devising a new test and in setting up procedures for its validation, the investigator is urged to formulate psychological hypotheses. The proponents of construct validity thus try to integrate psychological testing more closely with psychological theory and experimental methods. In brief, the construct validation paradigm integrates theory formulation with test construction principle. This approach has dual advantages (Skinner, 1987, p. 425). The theoretical model may be evaluated empirically through studies using the assessment instrument. Also, since the assessment measure has a theoretical basis, this framework should facilitate interpretation of the instrument itself.

Construct validity cannot generally be expressed in the form of a single coefficient, and is evaluated by a continuing accumulation of evidence from a variety of sources. Any data throwing light on the nature of the trait under consideration and the conditions affecting its development and manifestations contribute to the process of construct validation. Although establishing construct validity is an unending process, one can demonstrate the construct validity for a test in specific situations. Any testable prediction can be made to support valdity, including predictions of content and criterion-related validity. Other possible predictions include group differences, correlations, internal consistency, change over occasions, and studies of process (Aiken, 1988, p. 108; Allen & Yen, 1979, pp. 108-109; Anastasi, 1988; APA, 1985; Brown, 1983, p. 141; Cronbach, 1971; Cronbach & Meehl, 1955; Gronlund & Linn, 1990; Messick, 1989, pp. 49-56; Thorndike, 1982; Wolf, 1982).

Group difference. If the theory implies group differences (or no group differences) in test scores, this prediction could be studied by collecting data and conducting a reasonable statistical test of the hypothesis. For example, one might predict no differences among

cultural groups on a culture-fair ability test, or differences between children and adults on a test of social maturity. Also, in the cross-sectional case, so called criterion groups are identified that are expected to differ with respect to the construct being measured.

Change over occasions. The theory may imply that test scores change with time, advancing age, or after experimental intervention. In the longitudinal case, the relative stability of test scores, as well as the nature and degree of any developmental changes, are appraised in relation to the stability and developmental course theoretically expected for the construct under scrutiny. Also, the Standard-Binet and most preschool tests are checked against chronological age to determine whether the scores show a progressive increase with age. The theory also may predict changes in some scores but not others. For example, an assertion-training experience should increase assertiveness scores but not affect vocabulary scores.

Studies of process. Suppose a mathematical reasoning test contains word problems that use extremely difficult words. Based on one theory we might predict that all examinees are processing test items in the same way. However, another theory may lead us to expect that some examinees may be able to do the mathematics but cannot begin the problems because their vocabulary is weak. In this example the test measures mathematical reasoning for some examinees and vocabulary level for others. An examination of item content and correlations among item scores or an analysis of interviews with examinees as they solve the test items may help us to choose between theories about the cognitive processes underlying solutions to the test items.

Internal consistency. The essential characteristic of this method is that the criterion is none other than the total score on the test itself. Sometimes an adaptation of the contrasted group method is used, extreme groups being selected on the basis of the total test score. Another application of the criterion of internal consistency involves the correlation of subtest scores or items with total score. If a test is designed to measure a single construct, indices of homogeneity, such as coefficient alpha or KR-20 reliability coefficient, will provide relevant data.

Correlations. Probably the most common way of validating a test as a measure of a construct is through correlational analysis (Lemke & Wiersma, 1976, p. 140). In general, these methods are designed to indicate whether various tests measure the same construct and/or what features the tests do, and do not, share in common. The simplest procedure is to correlate scores on a new test with scores on an established test supposedly measuring the same construct. Tests that measure the same trait should tend to correlate highly with one another. Similarly, tests of different traits should tend to have low or zero correlation with one another.

In a more general sense, multitrait-multimethod approach is used when two or more traits are being measured by two or more methods. Campbell and Fiske (1959) developed correlational analysis into what they call convergent and discriminant validation by the multitrait-multimethod matrix, and offered a conceptual and an empirical test for construct validation. In its conceptual form, the test of validity bore a close resemblance to Gulliksen's (1950) intrinsic validity. Any given measure of a construct should show strong relationships with other measures of the same construct, but weak relationships with measures of other unrelated constructs. Empirically, the strategy calls for the intercorrelation of the scores on two or more different methods of measuring two or more different constructs. One would ordinarily expect, with such data, that the correlations among different methods of measuring the same construct to be clearly higher than the correlations among different constructs that are measured by the same method. The resulting validity matrix is similar to a correlation matrix which usually has 1.0s on its main diagonal. That is a correlation matrix with 1.0s replaced by estimated reliabilities. The reliabilities in the main diagonal should be large.

According to Messick (1989, p. 36), convergent evidence signifies that the measure in question is coherently related to other measures of the same construct as well as to other variables that it should relate to on theoretical grounds. Discriminant evidence signifies that the measure is not related unduly to exemplars of other distinct constructs.

For further verification, both of these sets of correlations should be higher than the correlations between different constructs measured by different methods, and lower than the

reliability of a given method of measuring a given construct (Angoff, 1988, p. 27). Therefore, construct validity is the degree to which measures of the same trait correlate higher with each other than they do with measures of different traits involving separate methods. This procedure has clearly become a standard for the establishment of construct validity.

Other methods used to study the relations among a set of tests or measures are factor analysis and cluster analysis. These approaches are described in detail in the next section.

K. Applications of Factor Analysis and Cluster Analysis

Factor Analysis

Factor analysis has made its most direct contribution to education through its influence on the composition of test batteries used for educational or vocational guidance. Factor analytic studies have also contributed to the selection of areas to be tested in achievement test batteries. Factor analysis has served to identify skills, abilities, and areas of achievement which are relatively independent, and has thus avoided unnecessary duplication of measures in providing a profile of a student's performance. Factorial studies have also often provided the framework for personality and interest inventories used in guidence and counseling.

The technique is in extensive use in the exploration of abilities, in the refining of tests and scales, and in the development of composite variables for use in research studies. Its most promising applications in recent years, however, have been concerned with the testing of explicit hypotheses about the structure of sets of variables. Factor analysis will remain an important technique for reducing and classifying sets of variables as a means of improving theoretical understanding in various disciplines, and for testing hypotheses about structural relationships among sets of variables.

Factor analysis has long been held to be a powerful tool in construct validation because the coalescence of multiple indicators of a construct into a factor provides convergent evidence; the simultaneous emergence of separate factors corresponding to different constructs

provides discriminant evidence; and, the correlations among distinct factors, corresponding to relations among constructs, provides some nomological evidence (Messick, 1989, p. 52).

The single most distinctive characteristic of factor analysis is its data reduction capability (Miller, 1983, p. 247). This means that given an array of correlation coefficients for a set of variables, factor analytic techniques enable one to see whether some underlying pattern of relationships exists such that the data may be rearranged or reduced to a smaller set of factors that may be considered source variables accounting for the observed interrelations in the data. It aims to describe the variation among a set of measures in terms of more basic explanatory constructs, and thus to provide a simpler and more easily grasped framework for understanding the network of relationships among those measures. It gives results which provide a basis for classifying a set of variables into smaller number of groups (Gupta, 1967, p. 24; Spearritt, 1988, p. 644). The overall result is parsimony of description and greater reliance on the meaning of subscores.

Factor analysis is also used in test development to enhance the internal consistency of tests (Smith & Glass, 1987, p. 221). A great deal of the correlational research on test validity employs factor analysis, which tells us what items measure the same thing and to what extent they measure whatever they measure (Kerlinger, 1986). It is a form of item analysis that checks whether all of the items on a scale are measuring the same trait. Test items are treated as variables in a correlation matrix. The factor analysis method is used to identify those items that do not share common variance with the others. Those that measure something unique are deleted. Tests that are indicators of a certain construct are expected to show substantial loadings on the same factor. When one of them loads on a second factor, this shows that the indicator is impure. Thus, factor analysis is applied in the theoretical understanding and validation of constructs.

A factor is a hypothetical construct that influences scores on one or more observed variables. Factor loading is a number that is very much like a correlation coefficient in size and meaning.

Factor analysis provides three types of information (Brown, 1983, p. 144): (a) How many factors are needed to account for the intercorrelations among the tests, (b) what factors determine performance on each test, and (c) what proportion of the variance in the test scores is accounted for by these factors. If the factors are uncorrelated, the squared loadings can be interpreted directly as percentages of the test variance.

Research using factor analysis can be described in terms of an exploratory-confirmatory continuum. A factor analysis is exploratory if the researcher does not have a hypothesis about the number or nature of the factors measured by the tests. That is, exploratory factor analysis attempts to derive from intercorrelations among items or tests a limited number of underlying components or variables that would account for the observed covariation (Messick, 1989, p. 52). A factor analysis is confirmatory if the researcher has such hypotheses and conducts statistical tests of them.

The selection of a method of factor analysis is normally guided by three general principles: (a) statistical simplicity, (b) psychological meaningfulness, and (c) parsimony of description (Harman, 1976, p. 4).

Methods of factor analysis. If statistical simplicity were the only criterion, a natural approach should be to represent the original set of variables in terms of a number of factors determined in sequence so that at each successive stage the factor would account for a maximum proportion of the total variance. This is known as *principal factor analysis.*

In geometrical terms, this method can be described as follows: Let there by n x m scores of n subjects on m variables. Each individual subject can then be represented by a point in an m dimensional space. In this space, one can insert an axis such that the maximum possible proportion of the total variance shown by the subjects lies along it. Another axis can then be inserted which accounts for the second maximum proportion of the residual variance and which is, at the same time, orthogonal to the first axis. A third axis will account for the third largest proportion of whatever variance remains after the first two parts have been removed and, at the same time, be orthogonal to the first two axes. This process is continued until almost all of the valid variance has been accounted for.

Another extensively used technique of factor analysis is the *principal component analysis*. It has a considerable body of literature in its own right, and is preferred to principal factor analysis by some investigators. By definition, principal components optimally explain the variance of the variables, and the principal factors optimally explain the covariation of the variables (McDonald, 1985, p. 226). Harman (1976, p. 134) argued that very often the results of a component analysis and a principal factor analysis may turn out to be very similar in practical applications. All the variance of the variables is analyzed in terms of the common factors. Hence, the distinction comes from the amount of variance analyzed--the numbers placed in the diagonal of the correlation matrix. Analysis of correlation matrix with ones in the diagonal leads to principal components, while analysis of the correlation matrix with communalities leads to principal factors.

Kaiser (1966), and Kaiser and Caffrey (1965) brought under focus what they called *alpha factor analysis*. It determines common factors that successively have maximum reliability in the generalized Kuder-Richardson sense, that is, factors with maximum "alpha" (internal consistency) to use Cronbach's term. The number of factors that come out is the number of eigenvalues greater than one of the correlation matrix, sometimes giving too few, and the average communality accounted for by principal factors is a little higher than the corresponding figure for alpha factors (Gupta, 1967, p. 26).

There are a number of other methods of factor analysis but most of them are either seemingly so or do not show any distinct advantage over principal factor analysis. That is perhaps why Harman (1976) says that the principal factor method points to a certain elegance and precision of mathematical form lacking in all other methods. And principal factor analysis can give the best results when judged on the criteria of statistical simplicity, psychological meaningfulness and parsimony of description (Gupta, 1967, p. 24, 1968a, p. 224; Harman, 1976, p. 4). It is the simplest and computationally most efficient method of factor analysis (SAS Institute, 1982). Also, it is used most often at present and widely available at computer installations (Kerlinger, 1986).

However, before the method of principal factor analysis can be applied to an interitem correlation matrix, decisions have to be taken in regard to the entries along the principal diagonal of the matrix.

Choice of communalities. The question about the entries in the diagonal cells of the matrix of correlations between the variables to be factorized is crucial. When unities are entered in the diagonal cells, the results include common as well as unique factors (total variance). When the interest of a researcher is only in the common factors represented by the variables, the diagonal cells should contain communalities (Harman, 1976). Cooley and Lohnes (1962) called communalities the common variance of the variables and stated that "when the task is construct seeking, it makes sense to eliminate from the analysis, if possible, the unique variance of each variable" (p. 159). The communality (h^2) is the proportion of the variance of a variable that is common to other variables in the set. It is the sum of squares of the common factor loadings. But communalities are usually indeterminate so that their best approximations have to be obtained.

According to Guttman (1956, p. 273), the lower bounds provide the best possible estimates of communalities, even though biased in general by being underestimates. These best possible and yet underestimates of communalities are widely known as the squared multiple correlations. It gives the proportion of the variance of the particular variable which can be predicted by the remaining n - 1 variables. In other words, squared multiple correlation measures the variance common to the particular variable and the remaining n - 1 variables. If the n variables represent m common factors, squared multiple correlation represents the proportion of the variance of the particular variable explained by these common factors. Squared multiple correlations are called the observed communalities since they measure common variance among the observed correlations, and known to be the most desirable approximations to communalities (Harman, 1976, pp. 87-88).

Being a lower bound, the squared multiple correlation has the highly desirable property basic to the common factor theory of being "equal to the communality in the limit as the number of variables increases" (Guttman, 1956, p. 272) and, therefore, it improves in

general as the number of variables increases due to the increase in information provided by additional variables.

Methods of rotation. In conducting a factor analysis, the initial set of factor loadings is obtained by using a method that permits convenient calculation of the loadings (for example, least squares methods). These loadings are called initial or unrotated loadings. Typically, researchers do not attempt to interpret the unrotated loadings. A chief reason for this is that except for the first general factor which ordinarily has high positive loadings on most of the variables, the remaining factors are bipolar, having negative loadings on about half of the variables. Bipolarity makes the work of interpretation extremely difficult but it can be eliminated by rotating the common factor axes located by factor analysis. A desire to do so led Thurstone (1947, p. 58) to formulate the concept of simple structure. Given an explanation of the intercorrelations of n variables in terms of a minimum number, m, of common factors, the basic notion of simple structure is that we explain the correlation of each variable with the others by a minimum number of those common factors. That is, broadly, a factor pattern has simple structure when each variable has large loadings on as few of the factors as possible and low or zero loadings on the remaining factors. Usually, three rules have been given for simple structure (McDonald, 1985, p. 81): (a) Each row of the factor pattern should have at least one zero element, (b) each column should have at least m zero elements, and (c) for every pair of columns there should be at least m variables with a zero coefficient in one column and a nonzero in the other.

Essentially, there are four main approaches to the problem of obtaining a transformation to approximate simple structure (McDonald, 1985, pp. 84-85; Kim & Mueller, 1978, p. 30). *Graphical* methods require to move axes on a graph and are rarely used. In *counting* methods, the number of variables that have a loading less than a given size (say .3) on each factor is counted and looked for a solution that maximizes this number. *Target* methods postulate the location of zeroes in the pattern and transform it to make the corresponding loadings as small as possible. *Simplicity function* methods are functions of the factor loadings that are chosen so that their optimum values will tend to coincide with an

approximation to simple structure.

Rotation of the factors amounts to finding two new axes, one that passes closer to the first cluster and a second that passes closer to the second cluster. For an *orthogonal solution*, the new axes must be perpendicular to one another. For an *oblique solution*, the new axes are not perpendicular and each of them would be located nearer to its respective cluster. For independent (i.e., uncorrelated) multiple factors, one would choose orthogonal factor rotation, otherwise oblique factor rotation. However, the general pattern of loadings is quite similar for the orthogonal and oblique solutions. The oblique solution simplifies a pattern that is already fairly evident in the orthogonal solution (Crocker & Algina, 1986, p. 300).

The most popular method at present for orthogonal solutions is the *normal varimax method of rotation* (also called *varimax rotation*), a modification proposed by Kaiser (1958, 1960), who was led to consider the simplicity of a factor matrix. The word is derived from variance maximization. This method obtains the sum across column of the variance of the squared loadings in the *m* columns. Usually the method is applied with the loadings normalized--divided by the square root of the communality--to make each raw sum of squares equal unity (maximized). When the variance is a maximum, the factor has the greatest interpretability in the sense that some of its loadings tend to unity and the others to zero. In other words, with this rotation each factor tends to load high on a small number of variables and low or very low on the other variables, generally making interpretation of the resulting factors easier (Spearritt, 1988, p. 651; Stevens, 1986, p. 343).

As Harman (1976) says, this method gives, as far as possible, level contributions, precluding any tendency toward general factor, and tries to clean up every factor. As a result, each variable gets large loadings on one, sometimes two or three factors and near zero on the others. This gives a much neater picture of its composition or of what the variable measures. Crawford and Ferguson (1970, p. 331) argue that the varimax criterion should usually be used whenever an accurate estimate of the number of factors is not available.

The number of factors. Determining the number of factors to retain in a factor analytic solution is one of the most important facets of factor analytic work. If one were to

obtain a perfect fit of the model to the data, the number of factors would be equal to the number of variables. A variety of techniques have been introduced to facilitate determining the number of factors to retain.

Largely, there are three approaches (Coovert & McNelis, 1988). As *mathematical approaches* using the criterion of algebraic necessity, Guttman (1956) recommended two bounds for the number of factors. His strongest lower bound requires accepting as many factors as the number of positive eigenvalues (or latent roots) given by a correlation matrix having squared multiple correlations in its principal diagonal. This gives about half as many factors as variables. His other lower bound is weaker than the first and limits the number of factors to the number of eigenvalues greater than one, a bound found by Kaiser (1960, p. 145) to give about a sixth to a third as many factors as the number of variables.

In *rules of thumb approaches*, there are three techniques. The first one includes only those factors accounting for a certain percentage of variance, that is, 80% of the total variance, and is generally not recommended. The second one is *Scree test* resulting from the observation that the factor variance levels off when the factors are measuring primarily random error. This is a mechanical decision and can result in both over- and under-factoring. The third one is *discontinuity method* by visual inspection of the graphic representation of observed eigenvalues. The underlying rationale is that factors which are important should explain large amounts of variance. Once these factors have been extracted, successive eigenvalues should be small and will be evident as a drop in the eigenvalue plot. The researcher visually inspects the plot of eigenvalues, identifies the last sharp discontinuity, and includes those factors before the final discontinuity. But, visual inspection does not always make it clear where discontinuity has occured, what about more than one discontinuity, and how much variance is accounted for by the factors.

Inferential approach (or *parallel analysis*) compares eigenvalues extracted from the observed correlation matrix with eigenvalues extracted from a correlation matrix generated using distributions of random numbers (given the same number of observations and variables). Graphically, the point at which the plots of observed and random eigenvalues

overlap is examined. Those factors accounting for more variance than the corresponding factors generated from random data are retained. This method can have a slight tendency to overfactor and is not well known.

Among the above techniques, a commonly used criterion for the number of factors to rotate is the "eigenvalues-greater-than-one" rule. This is the most popular rule used by practitioners (Cliff, 1988; Stevens, 1986) and is commonly employed as the default in computer packages. Eigenvalues greater than one means that the number of principal components of the observed variables that explain more than one unit of variance (whose sum of squares of correlations with the *n* variables is greater than unity) indicates the smallest number, or the actual number, of common factors that should account for the correlations (McDonald, 1985, p. 75). Such factors account for at least the equivalent of the total variance of any of the variables being analyzed (Sperritt, 1988, p. 648). Kaiser (1960) added further that "the number of eigenvalues greater than one of the observed correlation matrix led to a number of factors corresponding almost invariably, in a great number of studies, to the number of factors which practicing psychologists were able to interpret" (p. 145).

There are three rationales for this rule (Cliff, 1988). One is due to Guttman (1954), who proved that in the population it provided a lower bound for the number of common factors. The second is the informal reasoning that a component is of little interest if it accounts for less variance than a single variable does. The third is the statement by Kaiser (1960) that a component score will have negative reliability if the eigenvalue is less than unity.

According to Stevens (1986, p. 342), this Kaiser criterion has been shown to be quite accurate when the number of variables is greater than 30 and the communalities are greater than .70, or when the total number of subjects is greater than 250 and the mean of communalities is greater than or equal to .60. Very often less than or equal to five factors account for most of the variance (Stevens, 1986, p. 345).

Cluster Analysis

Methods of cluster analysis can largely be divided into two groups: (a) those using variance-covariance matrices, and (b) those using correlation matrices. In the former category, there is only one technique--that of *homogeneous keying*--by Loevinger (1947, 1948), which was elaborated later by DuBois, Loevinger and Gleser (1952, 1953) and outlined in Thorndike (1982). The latter category includes *linkage analysis* and *rank order typal analysis* by McQuitty (Gupta, 1967, p. 38).

The method of *homogeneous keying* has been programmed by Gupta and Burnett (1972). Examples of its application are provided by Gupta (1968a) and Handley (1973). This method is conceptually very simple and computationally very easy to use. It also provides a quantitative criterion for including an item in the test, and includes a method for calculating the contribution of an item to the homogeneity of the scale at any given stage (Gupta, 1968a, p. 224).

The technique starts with the variance-covariance matrix of the pool of items which are to be clustered or classified into subgroups or scales. The clusters produced have two properties: (a) Each cluster is independent, that is, it has low correlation with any other cluster derived from the same item pool; and (b) each cluster has maximum homogeneity or internal consistency. The results thus satisfy Campbell and Fiske's (1959) definition of convergent and discriminant validities. Briefly, it can be stated as follows:

From the variance-covariance matrix, the technique identifies those three items which give maximum homogeneity and, therefore, the highest discriminating power (which is defined as the ratio of the sum of the covariance of n items to the sum of the variances of the same items), then adds to it as fourth item that which maximizes the homogeneity for any of the four items in the universe of items. This amounts to maximizing alpha coefficient (Cronbach, 1951). According to Allen and Yen (1979), this happens when the test measures one trait only, that is, when the test is homogeneous with respect to the trait or attribute it measures. This process is continued until the addition of an item starts reducing (rather than increasing) the homogeneity of the cluster by more than an arbitrarily selected small amount, say .005.

This signals the approach of the point at which the process of extracting the first cluster should be terminated. The next cluster is formed similarly from the remaining items. Then the third and other subsequent clusters are formed as long as items are available. The final results of this approach are the reduction in the size of the item pool, maximization of internal consistency, and split of the scale into two or more parts, if the universe of items reflect more than one factor.

According to DuBois, Loevinger and Gleser (1952), some of the desirable properties of the technique are:

1. It produces scales which have high homogeneity.

2. At each stage, the best item is identified and added to the ones already in the cluster and at the same time, the items which are likely to introduce heterogeneity are discarded on the basis of a mathematical criterion. This device guards against introducing "functional drift" (which means, even though the items seem to be alike, they do not really function or behave as a team in actual practice). In this sense, the technique is elegant and straightforward in approach, and rigorous in application.

3. As an item is added, it is easy to calculate its contribution to the homogeneity, the mean, and the variance of a cluster. This enables the researcher to take decisions at each stage--a facility not afforded by factor analysis.

Comparison of Cluster and Factor Analyses

Whereas cluster analysis is easy to understand and can be completed using only a desk calculator, if necessary, factor analysis requires advance knowledge to use and interpret the results. Also, in factor anaysis the reliabilty of the resulting factors is not immediately known. Moreover, the factors with low internal consistency can be identified. This can mislead the investigator into believing that he has structurally valid scales. Moreover, it is well known that the results of a factor analysis are strongly affected by the choice of a factor rotation method and number of factors retained for factor rotation. While most cluster analysis models assign subjects or variables to a given cluster, they are often deficient in providing information on

three related issues (Gorman & Primavera, 1983, p. 165): the degree to which a particular variable belongs to its assigned cluster, the degree of overlap of memberships among cluster, and the relationships of clusters to each other.

Fruchter (1954, p. 12) said that "cluster analysis, a simple form of correlational analysis,...can be used to gain further understanding of the purposes and nature of factor analysis," and that one of the differences between cluster and factor analyses was that "in the former each variable as a unit usually is placed in a cluster, whereas in the latter, different portions of the variance of a variable may be assigned to different factors." In other words, cluster analysis attempts to assign items to subtests on an all-or-none basis, whereas factor analysis analyzes the variance or communality of an item into components representing various factors. Thus, the strength of factor analytic methods can be found in their ability to detect common, underlying dimensions to which variables may be allocated, while the strength of cluster analysis methods lies in their ability to indicate group membership.

However, this difference is rather nominal when varimax rotation is used because factor analysis tends to assign either very high or near-zero loadings to the various factors. By virtue of this, most variables can actually be assigned to a factor on an all-or-none basis to produce relatively independent factor scales. Only those items which are complex in the sense of high loadings on two or more factors will defy such clear-cut classification but they will create the same problem in cluster analysis.

Gupta (1968a, 1968b) demonstrated that the results from cluster analysis were very similar to those from factor analysis. Gorman and Primavera (1983, p. 168), and Loevinger (1948) regarded the two techniques complementary rather than competitive processes. In fact, while comparing her own procedure of cluster analysis with factor analysis, Loevinger (1948) regarded cluster analysis as a more direct technique for objectively defining psychological characteristics.

The information to be gained from each technique is valuable so that when factors and clusters coincide, the joint use of both methods will confirm the presence and form of simple structure in the data.

L. Summary

Parental acceptance, including father's acceptance, is an important factor in developing children's self-esteem, prosocial behavior, emotional stability, and positive world-view. Rohner (1984, 1986) attempted to prove the consequences of parental acceptance and rejection for behavioral, cognitive, and emotional development of children.

Although there are many scales assessing parental behavior, few meet the criteria on which instruments are judged, particularly on the criteria of reliability and validity. The latter implies reliance upon a justifiable theoretical framework. It is being recognized that the development of a valid instrument requires multi-pronged procedures which can be built into the instrument from the beginning. Loevinger (1947, 1957) proposed a formulation of construct validation which employs several approaches. The Parent Acceptance/Rejection Questionnaire by Rohner (1984) has good validity and reliability data, but it has been developed for the perception of mother's behavior only.

In this context, the present study aimed at developing and validating scales of parental acceptance for father and mother separately, paying attention to its psychometric properties in terms of factorial purity and high internal consistency.

III. Method and Procedures

A. The Population and the Sample

The data for this study were acquired from the Search Institute, Minneapolis, Minnesota, U.S.A. These data were collected, as part of a nation-wide attitude survey in the U.S., in late 1982 and early 1983. The subjects in the study consisted of 8,165 students of Grades 5 through 9, mostly in the age range 9 to 15 years. Every precaution was taken to ensure that all religious affiliations, both sexes and all geographic areas of the U.S.A. were adequately represented. In a sense, the respondents could be considered as reflecting the national population of young people in the U.S.

Thirteen youth-serving organizations, such as the American Lutheran Church, the Baptist General Conference, the 4-H Extension, the National Association of Homes for Children, the National Catholic Educational Association, the United Methodist Church and others, sponsored the survey. For most of the 13 national agencies, a two-stage sampling procedure was used. In the first stage, the selection of local units (i.e., churches, schools, clubs, or residential care facilities) was stratified by geography and local unit size (i.e., congregation size). In the second stage, young adolescents in each local unit were randomly selected from a master list of all fifth- to ninth- graders affiliated with the local unit. Sampling ratios were used to ensure that, for each of the 13 national organizations, every young adolescent affiliated with that organization had an equal possibility of being selected. Of the 1,513 local units drawn into the 13 national organizations, 63% participated. No systematic bias in geography, community size, or local unit size was detected in comparing cooperating versus noncooperating local units. Surveys were administered in group settings, guided by a detailed manual which standardized the survey administration process. Average administration time was 1 hour and 45 minutes. Across the 953 units that participated, about 60% of the adolescents drawn in the local unit random samples completed the survey questionnaire.

However, though the respondents in the survey were almost equally distributed by grades, ages, and sex, there were some demographic differences from the national population of youth. According to the national census data (Search Institute, 1984, pp. 5-6), 59% of Americans are Protestants, 28% are Catholics, 25% are nonwhite (Asian, Spanish, and Black), 35% of parents has four years or more of college education, and 23% of youth lives in single-parent households. Of the respondents in the survey, 83% were Protestants, 15% were Catholics, 10% were nonwhite, 12% were living in single-parent households, and 81% of parents had four years college or more education. Thus, the percentages of nonwhite, youth in single-parent households, Catholics and nonreligious group were underrepresented in the survey sample, and those of Protestants and parents with higher education were overrepresented. While this does not cover the entire population of young adolescents, it does represent a major segment of them. In this latter sense, the sample drawn from the respondents in this survey can be regarded as slightly biased.

One-thousand subjects were selected at random from the above population of 8,165 respondents. A random half sample from the 1,000 subjects was used for developing factorially pure scales, and the other half for cross-validation of the resulting scales.

Even though the *Youth Survey* was designed for adolescents in the U.S. 7 years ago, it is hoped that this limitation would not seriously affect the usefulness and generalizability of the study to Canadian young people, especially white, church-related adolescents. It is nonetheless expected that the data would still lead to valid conclusions in the context of parent-child relationships in these days.

B. Summary of the Questionnaire for the Youth Survey and the Sample Items

The *Youth Survey* is a self-report inventory developed to elicit attitudes of church-related students. This survey is a revision of the 420-item original survey developed by Strommen and Gupta in the 1960s. The survey's purpose is to provide quantifiable information regarding the concerns of today's American youth, which may be used for program design, counseling, and research.

The items for the survey instrument were selected or written on the basis of the following rationale. There are two needs which are essential to young people: (a) Young people need to feel that they are wanted by others, and this need influences what the young people believe about themselves, their families, and their country; and (b) young people need activities which give them a sense of purpose and significance. It is this sense of mission that gives the young people a feeling of identity. It follows that the person who believes that his life is meaningful and has significance or a sense of purpose will enjoy his work and leisure to a greater extent.

In view of the above rationale, the items are geared to measure the extent of the young person's perception of himself in two major areas: (a) perception of himself relative to himself and others, and (b) perception of himself relative to his purpose in life.

This survey consists of 319 questions, with response indicated on Likert-type scales (Search Institute, 1982). These questions are subsumed under separate scales which define three categories: concerns, beliefs and values, and perceptions. Most of them are related to the students' attitudes towards and perceptions of religion, school work, social problems, family, friends, life in general, interests in helping, moral responsibility, and self-regard. Some of the items elicit biographical and sociological information about the subject. The survey presents the items in the form of declarative statements.

The construct of parental acceptance similar to the one used by Rohner (1980, 1984, 1986) and others (Rollins & Thomas, 1979; Thomas et al., 1974) seems to be reflected in the 70 items from the *Youth Survey* (see Appendix A). Items 107 to 133 are for mothers and 166 to 192 for fathers. Nine items in each group are negatively worded (Items 168, 172, 173, 175, 176, 180, 181, 185, 189 for fathers; and 109, 113, 114, 116, 117, 121, 122, 126, 130 for mothers) and the rest are positive statements. For example, items illustrating positive type include "If I think a rule at home is not fair, I can talk to my mother about it" (Item 110), and items designed to measure negative one include "When I do something wrong, my mother slaps or hits me" (Item 113). This leaves us with 16 items which are the same for both parents. All of these are 5-response Likert-type items.

C. Data Analysis Procedures

After defining the construct and developing an initial pool of items or identifying an existing one that represents the construct, the next step to develop a scale was to select those items which give the maximum possible homogeneity (Loevinger, 1957). Ideally, criterion measures should be obtained independently of the instrument being developed. Since external criteria having acceptable reliability are rarely obtainable, recourse is generally taken to an internal criterion--the scores on the test itself, the items of which are being analyzed. When the criterion is internal, its homogeneity can be accomplished through multivariate analyses of the responses to the items constituting the criterion, so that the items which detract from the homogeneity of the scale are excluded and those which contribute to it are selected. To accomplish this objective, the following analyses were employed:

1. Principal factor analysis of polychoric correlation coefficients and the Pearson's r's on the first half sample, using 70 items.

2. The method of ***homogeneous keying*** applied to the interitem matrices of variance and covariance and then compare with the results of factor analysis.

3. Repeat steps # 1 and # 2 on the second half sample for cross-validation of the scales.

4. The above is followed by the method of *reciprocal averages* on the merged sample size of 1,000 for further improving the internal consistency of the scales.

To make interitem correlation matrices, the polychoric correlations and Pearson's r's were used to compare the results. When the observed variables are all ordinal scale types, it is suggested by Joreskog and Sorbom (1984) that estimates of polychoric correlations be computed and that a matrix of such correlations be analyzed by the unweighted least squares method. The polychoric correlation is a generalization of the tetrachoric correlation coefficient to more than two classes (Olsson, 1979). The most recent version of the LISREL computer program contains options that allow calculation of the polychoric correlations.

In behavioral research, there are many examples where a continuous variable underlies a dichotomous or polytomous observed variable (e.g., attitude items, rating scales, and Likert

items). When analyzing this kind of data, a common approach is to assign integer values to each category (for example, 1 through 5) and proceed with the analysis as if the data had been measured on an interval scale with the desired distributions (normality). Although many statistical methods seem to be fairly robust against this kind of deviation from the distributional assumptions, there are many situations that may lead to erroneous results (Poon & Lee, 1987, p. 409). Olsson (1979a) showed that due to the biased estimates of the correlation, the application of factor analysis to this kind of discrete data may lead to erroneous conclusions. Thus, it is important to derive justifiable correlation estimates with this kind of data.

Among the various techniques of factor analysis, principal factor analysis was used to identify those items which are homogeneous--they have one major factor running throughout. Principal factor analysis is the simplest and computaionally most efficient method of common factor analysis (SAS Institute, 1982). In diagonal cells, the squares of the multiple correlations (SMC's) were used and the resulting common factor space was subjected to normal varimax rotation.

Cluster analysis provides an alternative to factor analysis for developing uni-factor tests. Of the various cluster analytic procedures, the method of *homogeneous keying* by Loevinger (1947, 1948) was used and the results from it were compared with those from factor analysis. It uses variance-covariance matrices instead of correlation matrices and, therefore, generates interesting possibilities for comparing outcomes of factor analyses.

Item selection techniques tend to capitalize on random sampling errors present within a particular sample. Consequently, spuriously high reliabilties may result (Anastasi, 1988). Therefore, it is desirable that test validity be established using a different but comparable sample. This is especially so when a scale has been constructed primarily through empirical procedures, not through rational or theoretical approaches. Cureton (1950) pointed out the dangers of <u>not</u> cross-validating empirically constructed tests. He vividly demonstrated that the use of a single sample for item selection and test validation can produce a completely spurious validity coefficient under purely chance conditions. A survey of the psychological literature

reveals that psychologists have paid only a limited amount of attention to what Smith (1970, p. 970) said "an elemental principle of competent research," namely, the replication or cross-validation study. With regard to test validation, a test should not only be validated, but cross-validated. However, most of the tests in print have not been subjected to cross-validation.

To avoid this pitfall, the second half sample (mentioned above) was used for cross-validation and the results from the two samples were compared. Common items from the analyses were included in the scales.

In order to maximize the homogeneity of the scales, the method of *reciprocal averages* (Mosier, 1943) was used. This method begins with rationally assigning numerical weights to the item responses as a first judgemental approximation. For example, to the 5-response Item number 186, "My father is patient and kind with me," one can be assigned a weight of 1 and a weight of 5. To obtain the second approximation of weights, the response weights are adjusted in proportion to the mean total score for the particular subgroup of persons giving a specific item response. The total and mean scores for each subgroup on a particular response are once again calculated and weights further adjusted. This procedure continues in successive iterations until no further noticeable change occurs by the iterative process. Scores thus obtained yield maximum correlation with each of the items within the scale and, consequently, the reliability of the scores in the sense of internal consistency is maximized.

D. Criterion Items

The confirmation of construct validity requires information from as many sources as possible, including what Loevinger (1957) called the *external component*, which comes close to criterion-related validity. Criterion-related validity coefficients can provide relevant data for construct validation. Confirmation or disconfirmation (refutation) of the predictions based upon the construct would strengthen (or weaken) the confidence in the test as a measure of the purported trait (Brown, 1983). This research used selected information, concurrently available as responses to other items in the questionnaire, as criteria. The procedure employed

here involves making rational predictions based on related research and simple common sense and then examining them empirically by comparing test score means. For this purpose, behaviors shown independently of the scales were used as criteria. Thirty three items related to "concerns" which young people have about themselves and the world around them were selected from the *Youth Survey*. They are listed in Table 1 and Appendix B.

Criterion items were selected and grouped in six categories based on the results of previous studies reviewed in chapter II, as follows: (a) Helping Behavior (helping other people in various situations including around school, playground, and store), (b) Antisocial Behavior (drug use, drinking, stealing, vandalism, cheating, and beating others), (c) Feeling of Isolation (feeling lonely, difficulties of being in a group, of making friends, and of sharing feelings with others, and feeling of not being understood), (d) Concerns about Social Problems (concerns about poverty, hunger, drug, violence, helping others, and the country), (e) Self-Concept (personal worth, pride, self-confidence, self-determination, and persistence), and (f) Ideal World-View (social welfare, world without war and poverty). These items were cluster analyzed using the method of *homogeneous keying*, and some of them were excluded from each area, even though utilized as extra criterion items. The responses on these items were obtained by the Search Institute at the same time at which the other items which formed the scale were administered.

E. Hypotheses for Independent Confirmation of Construct Validity

The rationale used for this purpose was that adolescents who grew up under two contrasting types of parental behavior such as acceptance and lack of it (or rejection) would show differences in their concerns listed before. It was expected that youths who were fully accepted by their parents would be less concerned about antisocial behavior and feeling of isolation, and show more positive concerns about themselves, social problems, and ideal world.

Table 1

Criterion Items by Six Areas

Area	Item number
1. Helping behavior	313, 314, 315, 317
2. Anti-social behavior	256, 257, 268, 269, 270, 272
3. Feeling of isolation	89, 90, 95, 96, 234
4. Concerns about social problems	145, 202, 204, 211, 282
5. Self-concept	64, 69, 73, 79, 91, 99, 100, 102, 103, 222
6. Ideal world-view	36, 153, 158

Note. The items are reproduced in Appendix B.

More specifically, the following six hypotheses were proposed with respect to the parental acceptance scale.

1. Adolescents who score higher on the scale will show more helping behavior to others.

2. Adolescents who score higher on the scale will show less concerns about antisocial behavior.

3. Adolescents who score higher on the scale will show less concerns about feeling of isolation.

4. Adolescents who score higher on the scale will show more positive concerns about social problems.

5. Adolescents who score higher on the scale will show more positive self-concept.

6. Adolescents who score higher on the scale will show more positive concerns about ideal world.

The scores of the subjects within each contrasting group were analyzed by criterion categories and items according to the six hypotheses, using two-factor design with repeated measurements on one factor and one-way analysis of variance. The more the scores of the sampling units under one condition of the experiment are correlated with the scores of the sampling units under another condition of the experiment, the more advantageous it is to employ the sampling units under more than one condition, that is, to employ them for repeated measures. A very common research situation in which it is natural and advantageous to employ a repeated measures design is that in which a series of tests or subtests is to be administered to a group of subjects (Rosenthal & Rosnow, 1984, p. 306).

After analysis of variance, multiple comparisons of the mean for the groups were done, using Scheffe's method with significance level of .05. This method is more rigorous than other multiple comparison methods, leading to fewer significant differences, and is applicable to groups composed of unequal sample sizes.

IV. Results and Discussion

A. Comparison of Product-Moment Correlation with Polychoric Correlation in Factor Analysis

In order to compare the results, principal factor analysis was applied to the interitem matrices of Pearson's product-moment correlations and of polychorics respectively on the first half sample size of 500, using 70 items. The sample size for factor analysis was large enough to satisfy the standard usually used. In terms of the sample size required for reliable factors, Gorsuch (1983, p. 332) and Kerlinger (1986) suggested an absolute minimum ratio to be 5 to 10 individuals per variable, but not less than 100 persons for any analysis. For item analysis, Golden, Sawicki and Franzen (1984, p. 23) argued that it should be included a minimum of three times the number of subjects as test items. According to these two standards, the sample size for analyzing 70 items should be in between 210 and 700.

In the factor analyses, the squared multiple correlations were used in diagonal cells as approximations to the variables' communalities. Five orthogonal factors were extracted for each of the two analyses, and the resulting common factor space was subjected to normal varimax rotation. Very often less than or equal to five factors account for most of the variance (Stevens, 1986, p. 345). A sample of interitem correlation matrices of the polychorics and Pearson's are given in Table C-1 (i.e., Table 1 of Appendix C), and the factor loadings for the five factors are given in Table 2.

Table C-1 shows that two different measures of interitem correlations were almost the same, except the ploychorics being slightly larger in size than Pearson's. This result seems to be consistent with Olsson's (1979a, p. 457) conclusion.

In Table 2, factor loadings larger than .30 are presented, except a few less than that being presented in parenthesis for comparison. The rule of thumb often used is to consider factor loadings less than .30 as not substantial (Crocker & Algina, 1986, p. 299; Kim & Mueller, 1978; McDonald, 1985, p. 83).

Table 2

Factor Loadings of Five Factors by Two Different Measures of Inter item Correlation Coefficients

Item #	Product-moment						Polychoric					
	I	II	III	IV	V	h^2	I	II	III	IV	V	h^2
49					665	459					600	374
50					629	415					534	297
55			738			564			731			556
67			682			468			654			433
78						050						036
107			402			180			385			167
108						071						036
109			776			625			775			629
110						056						072
111						122						132
112			347			166			305			134
113			383			224			373			211
114		616				402		596				382
115					445	271					375	190
116	354					223	359					208
117						149						122
118		483				284		475				266
119						166						138
120	358		367			274	452		470			439
121	497					277	516					301
122		378				170		364				152
123						020						015
124						084						181
125						085						067
126				473		326				437		298
127		359				337		346				333
128						101						062
129	372	(-298)				289	413	-311				329
130	-344	(294)				263	-326	310				249
131	-367					232	-335					210

continued

(Table 2 continued)

Item #	Product-moment I	II	III	IV	V	h^2	Polychoric I	II	III	IV	V	h^2
132				391		185				369		167
133				-433		220				-395		165
143	645					477	663					496
166	404					170	300					150
167				449		219				430		201
168				602		383				597		376
169	-371					233	-366					237
170				420		252				406		247
171	601					375	558					332
172	-500					292	-483					286
173				437		230				404		192
174	421					297	410					263
175				301		155				(256)		125
176						093						091
177	552					354	515					323
178		519				294		503				275
179		513				282		566				349
180		(-279)				160		-355				209
181				333		127				(271)		086
182						068						039
183				399		223				337		178
184				408		211				343		151
185						123						116
186					456	246					385	194
187		645				437		644				439
188						099						088
189	500					300	482					287
190		606				407		580				372
191					428	234					326	171
192						261						256
199		-472				331		-488				351

continued

(Table 2 continued)

Item #	Product-moment I	II	III	IV	V	h^2	Polychoric I	II	III	IV	V	h^2
203		-558				416		-576				435
220			(-258)			200			-311			240
223						073						139
236			-320			144			(-298)			121
164			-451			332			-534			455
265	326	-392				365	315	-383				337
266	586					349	549					313
267					546	316					477	246
271						175						152
a	24.3	23.1	20.7	17.1	14.8	100.0	25.5	24.6	21.8	15.9	12.1	100.0

Note. n=500. Decimal is understood before all the entries.
Cut- off point of factor loadings is .300.
[a]% of common variance.

Factor loadings on five factors by two different measures were almost the same in size and direction. Also, the proportion of common variance for five factors were very similar. The number of loadings identified under each factor was the same in three factors, Factor I containing 16 items, Factor III 9, and Factor V 6. In Factor II, the number of items for the Pearson's was 11 and that for the polychoric was 14. In Factor IV, the number of items for the Pearson's was 11 and that for the polychoric was nine. Out of a total of 70, the disagreements were limited to only 7 items (Items 129, 130, 175, 180, 181, 220, and 236).

Olsson (1979, p. 443) showed that application of factor analysis to discrete data may lead to incorrect conclusions regarding the number of factors, and to biased estimates of the factor loadings, especially when the distributions of the observed variables are skewed in opposite directions. This is mainly due to biased estimates of the product-moment correlations computed from categorical variables, which is particularly evident when rating scale items, with varying numbers of categories and varying degrees of skewness, are used to assess substantially important constructs (Olsson, Drasgow & Dorans, 1982, p. 346). Thus, Olsson (1979, p. 443) argued that there seems to be some need for correlation estimates which are more viable when the observed data are ordinal with only a few scale steps. Hamdan (1971, p. 253) agreed with him, saying that the polychoric series method produces accurate estimates of correlation coefficient, even in the case of broad categories, a property which Pearson's phi correlation method does not possess.

However, according to the results presented in Table 2 and Table C-1, the choice between the polychoric correlations and Pearson's r's when principal factor analysis is used did not show a substantial difference. When comparing distribution of mean scores and response frequency for 70 items, only five items (skewness greater than 1.50 in either direction) were distributed in opposite ends. Therefore, it can be said that when the discrete data show near normal distribution, correlation matrix for factor analysis may be constructed either by computing product-moment correlations between variables or by computing polychorics.

B. Factor and Cluster Analyses for Item Selection

Factor Analysis on Sample A

In order to select those items which give maximum homogeneity, principal factor analysis of the interitem matrix of product-moment correlations was done using 70 items on the first half sample of size 500. Squared multiple correlation for each item was obtained and used in the diagonal cells for communalities, and seven factors were extracted having associated eigenvalues greater than one. After three iterations, the factoring was stopped, when the change in successive communalities was less than .02 for 90% or more of the variables. The resulting common factor space was subjected to normal varimax rotation for obtaining a simple structure. The loadings greater than .40 for the 70 items on the seven factors are given in Table C-2.

According to Stevens (1986, pp. 344-345), when sample size is quite large (say 1,000) or large relative to the number of variables (N = 500 for 20 variables), then significance of factor loadings is ensured. However, once one is confident that the loadings being used for interpretation are significant, then the question arises which loadings are large enough to be practically significant. Although the loadings which are greater than .30 are usually considered as substantial, it would seem that one would want in general a variable to share at least 15% of its variance with the factor it is going to be associated. This means only using loadings which are about .40 or greater for interpretation purpose.

The first two factors accounted for 49% of the total communality. Factor I had loadings of .40 and above on 11 items. An inspection of the items suggested that the first factor reflected Father's Acceptance. Factor II had high loadings on 12 items, and the inspection of the items suggested that the second factor reflected Mother's Acceptance. Factor III related to Mother's Firm Control, and had high loadings on nine items. Factor IV also had high loadings on nine items, and was idenified as Father's Firm Control. Factor V was defined by six items, and the nature of this factor could be described as Parental Lax Control. Factor VII consisted of four items and could be described as reflecting Parental Love. Two of

them (Items 167 and 192) also had high loadings on Factor I and the other two (Items 108 and 133) on Factor II. Factor VI had high loadings only on two items which ask the amount of time spent with the subject's mother or father, and was unlikely to be able to fit a common factor that would be well defined and interpretable. Three or more variables with loadings above .30 must be used to define a single factor adequately (Bechtoldt, 1961, p. 418; McDonald, 1985, p. 57).

As expected, 21 out of 70 items did not have high loadings on any of seven factors. Most of them were heterogeneous items related to both parents. The item pool of 70 items was deliberately expanded beyond the domain specially relevant to parental acceptance to include items relevant to other constructs and then to see how well the selected items exemplify the parental acceptance and whether they are distinct from exemplars of other related constructs.

Cluster Analysis on Sample A

The method of cluster analysis as developed by DuBois, Gleser and Loevinger (1952, 1953) was applied to the interitem matrices of variance and covariance of 70 items on the first half sample of size 500 in order to exclude items which detract from the homogeneity or functional unity of the scales and to compare the results with those obtained from factor analysis. Kuder-Richardson (1937) formula 20 (KR-20) was used to measure the homogeneity of a cluster. The process of extracting the cluster was terminated when the KR-20 threshold of decrease reached at .009, that is, when the addition of an item started reducing the reliability of the cluster by more than .009.

KR-20 and its derivatives such as alpha coefficient are referred to as a measure of homogeneity or internal consistency, when the test is uni-factor, because all possible split-halves including front-back and inner-outer splits of the test, not only the odd-even split, are considered by the process (Cangelosi, 1982, p.285; Helmstadter, 1964, p. 71; Lemke & Wiersma, 1976, p. 99; Thorndike, 1951, p. 586). That is, the coefficient of internal consistency is the mean of all possible split-half reliabilty estimates. It reflects the degree to

which the items measure the same trait. A necessary condition for obtaining a high consistency index is substantial correlation of each item with every other. If the KR-20 is greater than about .80, we should usually be satisfied, if the coefficient is less than .65, we are likely to have a test with unsatisfactory reliability (Cangelosi, 1982, p. 292).

The method of ***homogeneous keying*** split the items into 13 clusters. The only item which did not belong to any of the clusters was number 203 referring to youths' concern about possible death of one of their parents. There was already some doubt about this item logically fitting well with the others in any of the constructs.

Biserial correlations of selected items and KR-20 reliabilities for 13 clusters are given in Table C-3, and intercluster correlation matrix is given in Table C-4. Biserial correlations for the clusters ranged from .49 to .82 which seem to be proper size in scales measuring specific constructs. The exact size of the ideal biserial correlations between an item and the overall test score in order to discern the degree to which the item represents what the test measures as a whole varies with the intent of the test. Golden, Sawicki and Franzen (1984, p. 25) said that in a test measuring a broad skill or personality category, correlations may be in the .4 to .6 range, but in a test that purports to measure a single, highly specific skill, correlations should be substantially higher. Cluster VII through XIII out of 13 had low reliabilities less than or equal to .65 which are unsatisfactory to represent a factor or construct in its own right, and were excluded from the discussion. As shown in Table C-4, intercluster correlations indicated that the clusters seem to be nearly independent. Gupta (1967, p. 39) quoted that the technique of ***homogeneous keying*** gave clusters with an average intercluster correlation of .35 in the area of attitude measurement and .32 in the field of interest measurement. Average intercluster correlation of six clusters (I through VI) was .41 with less than 20% overlap, which meant each cluster was relatively independent of the others.

Cluster I, in the beginning, contained a nucleus of three Items 178, 182, and 188 which were highly correlated to one another, and had an internal consistency of .83. When the seventh item was added to six items already selected for Cluster I, it gave the maximum possible homogeneity of .91 of the cluster at which stage the process of extracting the first

cluster was terminated. All of seven items of Cluster I were related to Father's Acceptance, and were also present in Factor I. Cluster II contained a nucleus of three Items 124, 125, and 128 which had an alpha coefficient of .78 and the coefficient was improved maximally to .86 when the sixth item was added. Six items of Cluster II were also present in Factor II which expressed Mother's Acceptance. Four items related to Parental Love constituted Cluster III which had the homogeneity of .79, and which was identical to Factor VII. Nine items belonged to Cluster IV for which KR-20 reliability was .78, seven of them were distributed to Factors II, III, and IV, and the other two were not attached to any factor. This cluster seemed to reflect Parental Love with Firm Control, except Item 119 which refers to mother's help when the adolescent is upset. Naturally, Item 119 showed almost the same size of biserial correlation on Factor II. Cluster V included five items which also belonged to Factor IV relating to Father's Firm Control. The coefficient alpha of the cluster was .72. Cluster VI contained 10 items which reflect Parental Firm Control with mother's understanding and only four of which belonged to Factors II and III. The homogeneity of the scale was .75.

In summary, principal factor analysis produced seven factors having eigenvalues greater than one, of which the first two factors reflected parental acceptance. Factor I had loadings of .40 and above on 11 items, suggesting Father's Acceptance. Factor II had high loadings on 12 items, suggesting Mother's Acceptance. Cluster analysis split the items into 13 clusters. Cluster I contained seven items relating to Father's Acceptance and its KR-20 reliability was .91. Cluster II had six items referring to Mother's Acceptance and its reliability was .86. All of seven items of Cluster I were also present in Factor I, and all of six items of Cluster II were in Factor II.

C. Cross-Validation and Final Scales

Factor Analysis on Sample B

For cross-validation, principal factor analysis was performed again using 70 items on the second half sample of size 500. Seven factors having eigenvalues greater than one were

extracted, and after three iterations the resulting common factor space was subjected to normal varimax rotation. The loadings greater than .40 on the seven factors are presented in Table C-5.

The first two factors accounted for 42% of the total communality. Factor I had higher loadings on 10 items, and inspection of the items suggested that the first factor reflected Father's Acceptance. Also, 10 items belonged to Factor II which reflects Mother's Acceptance. Factors I and II contained almost the same items as those for Factors I and II on Sample A. Factor III had high loadings on nine items referring to Father's Firm Control, which were almost the same as those for Factor IV on Sample A. Factor IV had high loadings only on four items representing Parental Control. This factor showed no relationship with factors on Sample A. Factor V had high loadings also on four items indicating Parental Love, which was Factor VII on Sample A. Factor VI included seven items and seemed to be Parental Lax Control which was similar to Factor V on Sample A. Factor VII was defined only by two items showing parents' push to do one's best, but could not fit an interpretable factor. Twenty-six out of 70 items did not have high loadings on any of the seven factors.

The results of factor analysis on Sample B were very similar to those on Sample A in many ways, such as size of loadings and communality on each item, the number of factors discovered, and the amount of common variance of the first two factors. Especially, five factors on the two samples were almost identical. However, two factors IV and VII on Sample B did not appear on Sample A.

To further determine cross-validation, cluster analysis procedure was conducted.

Cluster Analysis on Sample B

Also, for cross-validation, the method of *homogeneous keying* was applied to the interitem matrices of variance and covariance of 70 items on the second half sample of size 500. The method of *homogeneous keying* split the items into 15 clusters. The only item which did not belong to any cluster was number 203. The same was the case in Sample A.

Biserial correlations of selected items and KR-20 reliabilities for 15 clusters are given in Table C-6, and intercluster correlation matrix is given in Table C-7. Biserial correlations for the clusters ranged from .50 to .85, which were very similar to those from Sample A. Nine clusters (V, VII, VIII, X through XV) out of 15 had low reliabilities to constitute reliable scales, and were excluded from the discussion. Average intercluster correlation of the remaining six clusters was .41, which was exactly the same as that obtained on Sample A, and which indicated that the clusters were relatively independent of one another.

Cluster I, in the beginning, consisted of a nucleus of three Items 178, 182, and 188 with the internal consistency of .82. When the sixth item was added to five items of the cluster, its homogeneity increased to .88. All of six items of the cluster were related to Father's Acceptance, showing almost the same as those found on Sample A. Cluster II contained a nucleus of three Items 123, 125, and 128 which had an alpha coefficient of .78. The coefficient improved to .87 when the seventh item was added to the cluster. These seven items were related to Mother's Acceptance, and six of them were the same as those included in Cluster II on Sample A. Cluster III defined by four items, suggesting Parental Love, had internal consistency of .81, and had exactly the same items as those of Cluster III on Sample A. Four items belonged to Cluster IV for which KR-20 reliability was .78, and suggested that this cluster was Father's Firm Control which was the same as that of Cluster V on Sample A. Cluster VI had eight items reflecting Mother's Firm Control, and the homogeneity of the cluster was .78. This cluster did not show any relation with the clusters on Sample A, but was almost the same as Factor III on the same sample. Cluster IX which had an alpha coefficient of .78 consisted of nine items related to Father's Firm Control, except Item 186 which refers to father's patience with the child. Item number 186, as expected, showed almost the same size of biserial correlation on Cluster I pertaining to Father's Acceptance. This cluster was the same as Cluster V on Sample A.

Putting all the results from factor and cluster analyses on two samples together, as far as reliable factors or clusters are concerned, six on Sample A were derived and the same number of factors or clusters on Sample B were selected. Among the six clusters or factors ,

Parental Love factor was identical in size to one another in four analyses (Cluster III on Sample A and B, Factor VII on Sample A, and Factor V on Sample B). Mother's and Father's Acceptance factors were also almost the same in size to one another, except that the factors from factor analyses had a few more items than did the cluster. Father's Firm Control factor was identical in size to each other in two factor analyses on two samples (Factors IV on Sample A and III on Sample B), but in cluster analyses that cluster split into two parts, containing smaller items than those of factor in factor analyses and some heterogeneous ones (Clusters IV and V on Sample A, and Clusters IV and IX on Sample B). Mother's Lax and Firm Control factors showed the same pattern as Father's Firm Control factor. Mother's Lax Control factor was almost the same in size to each other in factor analyses on two samples (Factors V on Sample A and VI on Sample B) and in cluster analysis on Sample A (Cluster IX), but split into two parts having three items each on Sample B (Clusters V and XIV). Also, Mother's Firm Control factor had almost the same items in Factor III on Sample A and in Cluster VI on Sample B, but shared some items with Clusters IV and VIII on Sample A.

It seems that the results from the two analyses on Sample A were almost the same as those on Sample B, thus providing a certain amount of cross-validation. It should also be noted that a cluster and its corresponding factor tended to contain almost the same items, though the cluster tended to be smaller in size. These cluster analyses broke down the scale into two or more parts, one with high and the remaining with high, medium or even low reliability.

Item Selection for Final Scales

As shown previously, Parental Acceptance factors emerged on Factors or Clusters I and II on both samples. Factor loadings and biserial correlations of selected items for those two factors or clusters on two samples are summarized in Table 3.

Table 3

Factor loadings of Two Factors and Biserial Correlations of Two Clusters for Selected Items by Multivariate Analyses and Samples

Item	Sample A				Sample B			
	Cluster		Factor		Cluster		Factor	
no.	I	II	I	II	I	II	I	II
108				430				428
110				484				462
112				545				
114								415
119		(574)		572		699		529
123		764		643		765		655
124		774		569		726		562
125		790		643		752		685
127		749		618		732		543
128		803		691		794		620
129		754		630		744		544
133				505				
167			526					
169			702				608	
171			512				479	
178	802		702		790		674	
182	808		735		811		700	
183	792		729		791		670	
184	789		738		773		701	
186	764		656		(601)		536	
187	824		738		797		682	
188	821		734		802		706	
192			467				406	
265				437				

Note. Decimal point is understood to precede each table entry. n=500 for each sample.

For the results of factor analyses on both samples, nine items were excluded from Factors I and II. These items did not fit the general nature of the factors and showed relatively low factor loadings on the corresponding factors. Items 108, 133, 167, and 192 are related to mother's or father's love, Items 110, 112, 169, and 171 pertain to parent's encouragement of the child's independence or autonomy, Item 114 indicates mother's rejection, and Item 265 reflects parents' praise of what the child did. For the results of cluster analyses, two items (shown in parenthesis in Table 3) were added to Cluster I on Sample B and Cluster II on Sample A. The inspection of the biserial correlations of the two items revealed that these two were clearly bipolar. Item 119 expressing mother's help for the child to feel better showed a biserial correlation of .59 with Cluster IV relating to Parent's Firm Control and of .57 with Cluster II indicating Mother's Acceptance on Sample A. Item 186 measuring father's patience and kindness had a biserial correlation of .61 with Cluster IX characterizing Father's Firm Control and of .60 with Cluster I signifying Father's Acceptance. Comparing the nature of the two factors, these two items should be included in Clusters I and II, not in Clusters IV and IX. Also, these two items were already included in Factors I and II on both samples, Cluster II on Sample B, and Cluster I on Sample A. Therefore, seven common items from the results of the four analyses consisted of the final scales. The mother-form of the scale was identical to the father-form, with changes made to appropriate pronouns. Items finally selected for mother's and father's acceptance scales are presented in Table 4. All the items suggest parental acceptance emphasizing helping approach in one way or another.

As shown in Table C-8, interitem correlations for the scales were medium in size, and those between mother's scale and father's were low. To put it concretely, the mean of interitem correlations for mother's scale was .497 on Sample A and .483 on Sample B, and that for father's was .580 and .534 respectively. The average of interitem correlations between mother's scale and father's was .291 on Sample A and .315 on Sample B. Therefore, even though they had a small number of items, the scales were undoubtedly homogeneous.

Table 4

Items of Parental Acceptance Scale

Item no.	Item
119 (178)	My mother (father) tries to help me feel better when I upset or scared.
123 (182)	When I do something wrong, my mother (father) takes the time to help me see why it was wrong.
124 (183)	When my mother (father) punishes me, she (he) explains why she (he) is doing it.
125 (184)	My mother (father) gives me a chance to talk over rules I don't understand or like.
127 (186)	My mother (father) is patient and kind with me.
128 (187)	My mother (father) tries to help me see why rules are necessary and important.
129 (188)	My mother (father) helps me when I have a problem.

Note. Numbers in parenthesis are for father's scale.

The number of items is determined by the purpose of the test or the uses to which it is to be put, and by the statistical characteristics of the items. If important decisions regarding individuals are to be based on the test, it must be more reliable and hence must contain more items than would be the case if it were to be used only for quick group comparisons, as was the case here. Again, if the items of the test are very homogeneous in nature, the optimal number is lower than for highly heterogeneous item content or form (Vaughn, 1951, p. 170). A test for which several part scores are to be obtained will require more items in order to produce a given degree of reliability of each part score than will a test on which only a single overall score of the same degree of reliability is needed.

Means and standard deviations of seven items for mother's and father's scales on Samples A and B are given in Table C-9. The total score of the scale has the range of a minimum of 7 and a maximum of 35. The mean and the standard deviation of the total score for father's scale on the merged sample of size 1,000 were 24.20 and 6.76, and those for mother's were 25.79 and 6.15 respectively. The correlation coefficient between the total score of mother's scale and that of father's was .516 ($p<.001$). The difference between the two means of the scales was significant, $t(999) = 5.51$, $p<.001$. That is, adolescents perceived their mothers as higher in acceptance level than fathers. This finding is consistent with the results of previous research (Fristad & Karpowitz, 1988; Rohner & Nielsen, 1978). However, the effect of parent's sex on the level of acceptance perceived by adolescents did not seem to be strong enough. Because the index w^2 (omega squared), representing the strength of association between independent and dependent variables (Hays, 1988, p. 307), showed .015, which means parent's sex accounted for only about 1.5% of the variance of the acceptance scale score. The index w^2 reflects the predictive power afforded by a relationship: When w^2 is zero, then X does not aid us at all in predicting the value of Y. On the other hand, when w^2 is 1.00, this tells us that X lets us know Y exactly. All intermediate values of the index represent different degrees of predictive ability.

Reliability of the Scales

In order to further increase the homogeneity of the scales, it was decided to assign to the responses for an item on the merged sample of size 1,000 optimum weights by using the method of *reciprocal averages* (Mosier, 1943), which was explained in detail in chapter III. The apriori and the final reliabilities are given in Table 5, and the details in changes in weights of item response for the scales are presented in Tables C-10 and C-11.

An examination of Table 5 shows that the scales were highly reliable before the responses were weighted optimally. In this case, it was difficult to improve the already present high internal consistencies by the use of the *reciprocal averages* method. Improvement was invariably present, however. After five iterations, the initial Hoyt's reliabilities of .8699 for mother's scale and .8983 for father's improved to .8704 and .8987, respectively. It can be recommended, therefore, that where computing facilities are available, it is worth using the method of *reciprocal averages*.

Hoyt's (1941, p. 158) reliability, based on analysis of variance, is given by the ratio of the variance of the obtained scores (variance among individuals) to the discrepancy between the variance of the obtained scores and the variance of the true scores (variance remainder). The result obtained from this formula is identical with that from KR-20 (Helmstadter, 1964, p. 73; Hoyt, 1941, p. 156; Thorndike, 1951, p. 590).

As shown in Table 5, lengthening a test is not a guaranteed way of increasing its reliability, if the additional material has lower item intercorrelations than the original. The reliability of many tests can actually be increased by omitting a number of unreliable items in the test. For some purposes, a brief test built of the most consistent items may be preferable to a longer test of less carefully chosen materials. The length of a test may be thought of not only as the number of items, but also as the number of options per item (Thorndike, 1951, p. 602).

Table 5

Scale Reliabilities by Iteration, using the Method of Reciprocal Averages

Scale	Iteration				
	1	2	3	4	5
Mother's					
Changes in weights	0	76	10	2	0
Hoyt reliability	.8699	.8453	.8692	.8704	.8704
Father's					
Changes in weights	0	77	8	2	1
Hoyt reliability	.8983	.8789	.8982	.8983	.8987

Note. N=1,000

D. Cluster Analysis on Criterion Items

For the confirmation of construct validity, 33 items related to concerns which adolescents have about themselves and the world around them were selected, and grouped by six categories or scales based on the results of previous studies. In order to examine the adequacy of the major six areas classified, these 33 criterion items on the merged sample of size 1,000 were cluster analyzed, using the method of *homogeneous keying*. The process of extracting the cluster was terminated when the KR-20 threshold of decrease reached at .009, as did before.

The method of *homogeneous keying* split the items into eight clusters. Biserial correlations of items and KR-20 reliabilities for eight clusters are given in Table 6, intercluster correlation matrix in Table C-12, and interitem correlations in Table C-13, respectively.

Biserial correlations for the clusters ranged from .44 to .81. Clusters VII and VIII had very low reliabilities unsatisfactory to represent a factor in its own right, and were extremely heterogeneous, as evidenced from the reliabilities given in the last row of Table 6. In fact, these two clusters merely contained the items not included in the homogeneous Clusters I through VI.

Cluster I contained three items related to Helping Behavior, with the internal consistency of .69. Cluster II had four items suggesting Antisocial Behavior and its homogeneity was .73. Three items belonged to Cluster III for which KR-20 reliability was .65, and they were related to Feeling of Isolation. Cluster IV representing Concerns about Social Problems had four items, having the coefficient alpha of .65. Cluster V consisted of eight items referring to Self-Concept and had the homogeneity of .65. Cluster VI included three items reflecting Ideal World-View, with KR-20 reliability of .52. These three items did not undergo any change as a result of cluster analysis.

Table 6
Biserial Correlations and KR-20 Reliabilities for Clusters of Criterion Items

Item no.	Cluster I	II	III	IV	V	VI	VII	VIII
36						576		
64					565			
69					644			
73					547			
79					446			
89			771					
90			790					
91							486	
95							584	
96			741					
99					534			
100							564	
102					526			
103					534			
145				600				
153						807		
158						747		
202				717				
204				729				
211				756				

continued

(Table 6 continued)

Item no.	Cluster I	II	III	IV	V	VI	VII	VIII
222					513			
234							558	
256		767						
257		793						
268		694						
269								582
270		725						
272								555
282								545
313	771							
314	812							
315	789							
317								611
no. of items	3	4	3	4	8	3	4	4
KR-20	.699	.727	.650	.656	.646	.523	.410	.318

Note. N=1,000. Decimal point is understood to precede each table entry.

A total of eight items were dropped from the initial five categories. Table C-13 shows that intercorrelations of eight items with similar ones in the corresponding categories were very low. Interitem correlations ranged from .18 to .22 for Item 317 with three others (313, 314, and 315) reflecting Helping Behavior, from .18 to .36 for Item 269 and from .20 to .40 for Item 272 with four others (256, 257, 268, and 270) relating to Antisocial Behavior, from .20 to .26 for Item 95 and from .18 to .20 for Item 234 with three others (89, 90, and 96) indicating Feeling of Isolation, from .21 to .30 for Item 282 with four others (145, 202, 204, and 211) representing Concerns about Social Problems, and from -.12 to .19 for Item 91 and from -.16 to .24 for Item 100 with eight others (64, 69, 73, 79, 99, 102, 103, and 222) referring to Self-Concept. However, these eight items were utilized additionally as extra criterion items.

As shown in Table C-12, intercluster correlations indicate that the clusters were independent of one another. Average intercluster correlation of six clusters was .18 with less than 4% overlap.

In general, the reliabilities of six criterion categories or scales seem to be relatively low. According to Thorndike (1951, p. 608), though reliable criterion measures are eminently desirable, since they reduce the chance errors of measurement and consequently make for greater accuracy in the determination of relationships between predictor and criterion, high reliability in a criterion is less important than maximum relevance of the criterion to the goals in which one is ultimately interested.

E. Hypothesis Testing for Confirmation of Construct Validity of the Scales

To test research hypotheses set up from the predictions on the scales against 33 criterion items, four contrasting groups were formed on the basis of the subjects' total scores on parental acceptance scales, using merged sample of size 1,000. To select groups who show large difference in their parental acceptance levels, middle group was excluded, who fell between the mean total score of the scale and .5 standard deviation above and below the mean (about 38% of the total). Thus, the group which was high in acceptance level had a total

score greater than or equal to 28.0 for father's scale, and 29.0 for mother's. The group which was low in acceptance level had a total score less than or equal to 20.22 for father's and 22.0 for mother's. Combining these parental acceptance levels together, four groups were formed, such as those who are high on both mother's and father's (HH), who are high on mother's but low on father's (HL), who are low on mother's but high on father's (LH), and who are low on both (LL). As expected and quite naturally, the size of those four groups were unequal. HH and LL groups were much bigger in size than the other two groups. That is, parental acceptance level showed a tendency to be in accord with each other.

The examination of the construct validity of parental acceptance scales consisted of three aspects. First, the differences between the means of four contrasting groups on each of six criterion categories considered as a composite single criterion corresponding to each of research hypotheses were examined, using a two-factor design with repeated measurement on one factor. One factor has four levels or groups representing the degree of parental acceptance. The other factor, the items in each of the six categories or scales, furnished the repeated measurements in this study.

Winer (1971) pointed out that in repeated measurements designs, the various treatments administered to the same subject should be randomized for each subject separately and that sufficient time should pass between the administration of any two treatments to a given subject so that practice and transfer effects may be negligible. This condition, though essential in learning experiments, does not apply to the present case where the items are variates rather than treatments.

After two-way analysis of variance with repeated measurements on one factor (see Table C-14), only *between groups* part of the analysis was used. Because this study has no interest in the effects of *between items* and *interaction* parts.

Secondly, the differences between the mean scores of four groups on each of the criterion items including extra ones were analyzed by one-way analysis of variance (see Table C-15). Thirdly, following a significant F-test, multiple comparisons were performed, using Scheffe's method.

Even though many investigators choose to use the Scheffe procedure with a significance level of .10 or the Newman-Keuls procedure, since the Scheffe method is more conservative than other multiple comparison methods with regard to Type I error which is the probability of rejecting the null hypothesis when it is true, leading to fewer significant results, the significance level in using the Scheffe procedure in this study was employed at .05 to compare means between groups more rigorously.

Hypothesis 1: Parental Acceptance Level and Adolescents' Helping Behavior

Hypothesis # 1 assumes that adolescents who score higher on the parental acceptance scale than those who don't will show more helping behavior to others. The results are given in Table 7. It shows that this hypothesis was clearly sustained.

For the total score of helping behavior criterion category or scale, the mean of HH group was higher than that of LL group and the null hypothesis was rejected at the .05 level of significance. That is, adolescents who got sufficient acceptance from their both parents showed a higher tendency to help others than those who did not get sufficient acceptance from both parents.

Criterion Item 313 relates to the subject's willingness of whether he or she would try to be friendly to a new child of the same age coming to the school a few weeks after it starts (see Appendix B). On this item, the mean score of HH group was significantly higher than that of LL group. Also, the results of criterion Items 314 and 315 were the same as that of Item 313. Item 314 describes whether or not the subject walking by a grocery store would stop to help a woman pick up the groceries dropped all over the sidewalk. Item 315 refers to the subject's willingness to help a child who fell and got hurt on a playground.

All in all, it was confirmed that parental acceptance is positively related with early adoescents' helping behavior. However, this relation was limited only to groups who perceived both parents, not one or the other, as higher or lower in acceptance. This evidence suggests that parental acceptance is more effective in leading to increased helpfulness and generosity of adolescents when shown by both parents.

Table 7

Means, Standard Deviations, F, and Scheffe Test of Criterion Items on Helping Behavior by Four Levels of Parental Acceptance

#	Item	Parental acceptance level LL (n=153)	LH (n=18)	HL (n=41)	HH (n=229)	F[b]	Group difference[a]
313.	Helping a newcomer						
	M	3.989	4.111	4.323	4.457	7.411***	HH>LL
	SD	1.112	1.132	0.877	0.852		
314.	Helping a woman pick up the groceries						
	M	3.797	3.889	4.194	4.305	7.924***	HH>LL
	SD	1.090	1.568	1.030	0.915		
315.	Helping a child who got hurt						
	M	4.054	4.444	4.447	4.414	5.009***	HH>LL
	SD	1.056	1.149	0.973	0.843		
	Total						
	M	3.947	4.148	4.321	4.392	2.987*	HH>LL
	SD	1.085	1.283	0.960	0.870		

Note. LL = Lower in mother's acceptance level and lower in father's; LH = Lower in mother's and higher in father's; HL = Higher in mother's and lower in father's; HH = Higher in mother's and higher in father's.

[a]Scheffe test for multiple comparison was done at the .05 level.

[b]F-values are for one-way ANOVA on individual items, and for the effect of between groups of two-way ANOVA with repeated measurements on one factor for the total score of the category.

*$p < .05$, ***$p < .001$, one-tailed.

In other words, this result gives some justification in inferring that father's acceptance is also important as much as mother's. If father's acceptance were not strong enough to influence adolescent's helping behavior, the mean of HL group would also have been significantly higher than that of LL or LH group. Another characteristic of HH group was that it had the least standard deviation among the four groups. That is, the standard deviation for HH group on the total score of criterion items was 1.99, and those for the remaining groups were 2.45, 3.54, and 2.36 respectively. This tendency was the same for the individual items. This result indicates that individual difference in criterion behavior was the least for HH group.

Hypothesis 2: Parental Acceptance Level and Adolescents' Antisocial Behavior

Hypothesis # 2 was that adolescents who score higher on the scale will show less concerns about antisocial behavior. Table 8 shows that this hypothesis was supported.

For the total score of four criterion items on antisocial behavior, the mean of HH group was significantly lower than those of other three groups.

Also, for the comparison on three individual items, except Item 268, the mean of HH group was significantly lower than that of LL, HL, or LH group. Item 256 is about the frequency for the subject to have used marijuana (pot, grass, and dope) in the last 12 months. On this criterion behavior, the mean of HH group emerged as significantly lower than that of LH and HL groups. Item 257 pertains to the subject's frequency to have had beer, wine, or liquor to drink (not to take a sip) in the last 12 months. The mean score of HH group on this item was significantly lower than that of LL and LH groups. The same held true on Item 270, which refers to the subject's frequency to have damaged property at school or somewhere else during the last 12 months. On this item, the mean score of HH group was lower than that of LL group. However, on Item 268, there was no significant difference between the mean scores of four groups ($p > .05$). This item reflects the frequency for the subject to have taken something from a store without paying for it during the last 12 months.

Table 8

Means, Standard Deviations, F, and Scheffe Test of Criterion Items on Anti social Behavior by Four Levels of Parental Acceptance

#	Item	Parental acceptance level LL (n=153)	LH (n=18)	HL (n=41)	HH (n=229)	F[b]	Group difference[a]
256.	Using marijuana						
	M	1.281	1.667	1.480	1.073	6.641***	HH<LH HH<HL
	SD	0.899	1.645	1.222	0.365		
257.	Drinking						
	M	1.861	2.167	1.890	1.348	8.353***	HH<LL HH<LH
	SD	1.405	2.036	1.393	0.803		
268.	Stealing						
	M	1.292	1.333	1.310	1.146	1.993	
	SD	0.757	0.686	0.780	0.558		
270.	Vandalism						
	M	1.490	1.667	1.510	1.237	4.610**	HH<LL
	SD	0.924	1.029	0.833	0.654		
	Total						
	M	1.481	1.708	1.548	1.201	4.829**	HH<LL HH<LH HH<HL
	SD	0.996	1.349	1.057	0.595		

Note. LL=Lower in mother's acceptance level and lower in father's; LH=Lower in mother's and higher in father's; HL = Higher in mother's and lower in father's; HH = Higher in mother's and higher in father's.

[a]Scheffe test for multiple comparison was done at the .05 level.

[b]F-values are for one-way ANOVA on individual items, and for the effect of between groups of two-way ANOVA with repeated measurements on one factor for the total score of the category.

**$p < .01$, ***$p < .001$, one-tailed.

As shown in Table 8, the mean and the standard deviation on this item was the least among the four criterion items. Maybe this seems to suggest that adolescents regard stealing as the most serious delinquent behavior of the four, irrespective of the level of their parental acceptance. In other words, stealing may perceived by adolescents too serious to show the difference between their parental acceptance level.

As in the case of helping behavior, the standard deviations of HH group on criterion behavior were the least for the total score and individual items as well. This suggests that individual difference in antisocial behavior was also the least for HH group.

As far as antisocial behavior is concerned, several categories are converging that alert us to early adolescence as an increasingly troubled time. According to Lipsitz (1980, p. 8), school violence reaches its highest during the junior high school years, and juvenile delinquency appears to blossom around age 14. In 1985, smoking and drinking were the most prevalent activities in the early adolescent age group (Newcomb & Bentler, 1989, p. 244). The proportion of high school students who reported being drunk at least once is 49% (Elkind, 1984, p. 185), somewhere between 20% and 30% of eighth graders drink excessively (Lipsitz, 1980, p. 8), and 4.3% of 13-year-olds and 9.7% of 14-year-olds are already heavy drinkers defined as drinking at least once a week in large amounts (Conger & Petersen, 1984, p. 510). Drug abuse soars in the junior high years. 64% of American young people have tried illegal drugs before they finish high school (Elkind, 1984, p. 186). The proportion of all arrests under 18 years of age in U.S. in 1980 was 49% for vandalism and 38% for theft (Conger & Petersen, 1984, p. 614). The estimates of school vandalism in the U.S. run from about $50 million to $600 million, with most estimates in the $100-200 million range (Zwier & Vaughan, 1984, p. 263).

All of these antisocial behaviors reflect adolescents' reaction to the stress, peer pressure, emotional disturbance, rebellion against parents, and so on. Conger and Petersen (1984) pointed out that "the most single predictive indicator of actual adolescent delinquency was the adolescent's relationships with their parents: The better the adolescent reports getting along with his or her parents, the less delinquency" (p. 626). As reviewed in chapter II,

parent-child relationships of delinquents are far more likely than those of nondelinquents to be characterized by a lack of intimate communication, mutual understanding, and affectional identification between parent and child. They are also far more likely to be characterized by mutual hostility, parental rejection, and indifference. Parents need to remember that they are role models, and that children take their cues from what parents do, as well as what they say. If parents present models of responsible, nurturant, helping behavior, and show love and respect for children, their young ones are likely to do the same. The result of Table 8 implies again the importance of parental acceptance in relation to adolescent delinquency.

Hypothesis 3: Parental Acceptance Level and Adolescents' Feeling of Isolation

Hypothesis # 3 postulates that adolescents who score higher on the scale will show less concerns about feeling of isolation. The results are presented in Table 9.

For the total score of three criterion items on feeling of isolation, the mean of HH group was significantly lower than that of LL group. Also, the F-ratios were significant ($p<.001$) for two items out of three.

Item 90 represents the degree for the subject to feel lonely. The mean for HH group was significantly lower than that for LL group. Item 96 shows the degree for the subject to feel no one understand him or her. The mean of HH group was also significantly lower than that of LL group. But, on Item 89, the means between four groups were not significantly different from one another ($p>.05$). This item depicts the degree for the subject to feel "hard to make friends." A closer look at the item revealed that most of the subjects responded to the question as true *once in a while*. Thus, the nature of this item seems to be too general to differentiate the reponses between groups. And it was the same as the cases of helping and antisocial behaviors that the variability of individual difference on criterion behavior was the least for HH group.

In general, hypothesis # 3 was substantiated, in that the above results seem to lead to conclude that adolescents who perceived both parental acceptance as higher than those who did not were less likely to feel isolation.

Table 9

Means, Standard Deviations, F, and Scheffe Test of Criterion Items on Feeling of Isolation by Four Levels of Parental Acceptance

#	Item	Parental acceptance level LL (n=153)	LH (n=18)	HL (n=41)	HH (n=229)	F[b]	Group difference[a]
89.	Hard to make friends						
	M	2.242	1.889	2.073	1.996	1.743	
	SD	1.153	1.183	1.212	1.028		
90.	Lonely						
	M	2.111	2.167	1.951	1.677	5.879***	HH<LL
	SD	1.139	1.339	0.973	0.964		
96.	No one understands me						
	M	2.837	2.722	2.561	2.116	15.165***	HH<LL
	SD	1.115	1.018	1.246	0.966		
	Total						
	M	2.396	2.259	2.195	1.929	2.509*	HH<LL
	SD	1.135	1.180	1.144	0.986		

Note. LL=Lower in mother's acceptance level and lower in father's; LH=Lower in mother's and higher in father's; HL=Higher in mother's and lower in father's; HH=Higher in mother's and higher in father's.

[a]Scheffe test for multiple comparison was done at the .05 level.

[b]F-values are for one-way ANOVA on individual items, and for the effect of between groups of two-way ANOVA with repeated measurements on one factor for the total score of the category.

*$p < .05$, ***$p < .001$, one-tailed.

Hypothesis 4: Parental Acceptance Level and Adolescents' Concerns about Social Problems

Hypothesis # 4 contains that adolescents who score higher on the scale will show more positive concerns about social problems. As shown in Table 10, this hypothesis was clearly confirmed.

For the total score on four criterion items related to concerns about social problems, the mean score of HH and HL group was significantly higher than that of LL group.

The same applies to all the individual items. Item 145 relates to the subject's concern about doing things which help people. The mean scores of HH and HL groups were significantly higher than that of LL group. Item 202 means the worry about all the drugs and drinking the subject sees around him or her. The mean of HH group, likewise, was significantly higher than that of LL group. The same was the case of Items 204 and 211. Item 204 refers to the worry about all the poor and hungry people in the country. And Item 211 relates to the worry about all the violence happening in the country.

Young adolescents in these days appear to be very aware of and highly concerned about social issues. According to *Youth Survey* by Search Institute (1984, p. 97), about 40% of young adolescents worried very much about social issues like drugs, drinking, hunger, poverty, violence, and nuclear destruction, while about 10% of parents did. That is, parents underestimate the extent to which young adolescents worry about these social issues. Especially, young people all over the world are quite anxious about the nuclear threat. Fifty-eight percent of California adolescents (n = 913), 51% of Ontario teenagers (n = 2,000), and over 90% of Soviet youngsters (n = 293) reported a fear of nuclear war, and the number one worry of Swedish adolescents (n = 917) was nuclear war (Newman, 1987). Also, a half of British 15- to 18-year-olds considered nuclear war is quite likely in their lifetime (Tizard, 1989).

To sum up, it can be said that parental acceptance leads adolescents to show positive concerns about social problems.

Table 10

Means, Standard Deviations, F, and Scheffe Test of Criterion Items on Concerns about Social Problems by Four Levels of Parental Acceptance

#	Item	Parental acceptance level LL (n=153)	LH (n=18)	HL (n=41)	HH (n=229)	F[b]	Group difference[a]
145.	Helping in general						
	M	3.284	3.611	3.780	3.891	13.189***	HH>LL HL>LL
	SD	0.996	0.698	0.936	0.904		
202.	Drugs and drinking						
	M	2.817	3.167	3.292	3.319	4.748**	HH>LL
	SD	1.222	1.200	1.328	1.360		
204.	Poor people						
	M	2.961	3.069	3.445	3.661	12.812***	HH>LL
	SD	1.123	0.999	1.284	1.066		
211.	Violence						
	M	3.047	3.222	3.418	3.534	5.583***	HH>LL
	SD	1.078	1.215	1.395	1.152		
	Total						
	M	3.027	3.267	3.484	3.601	4.470**	HH>LL HL>LL
	SD	1.104	1.028	1.235	1.121		

Note. LL = Lower in mother's acceptance level and lower in father's; LH = Lower in mother's and higher in father's; HL = Higher in mother's and lower in father's; HH = Higher in mother's and higher in father's.

[a]Scheffe test for multiple comparison was done at the .05 level.

[b]F-values are for one-way ANOVA on individual items, and for the effect of between groups of two-way ANOVA with repeated measurements on one factor for the total score of the category.

**$p < .01$, ***$p < .001$, one-tailed.

Hypothesis 5: Parental Acceptance Level and Adolescents' Self-Concept

Hypothesis # 5 is that adolescents who score higher on the scale will show more positive self-concept. The term self-concept is often used synonymously with self-esteem (Coopersmith, 1967; Saavedra, 1980; Sears, 1970). The results are given in Table 11. Again, this hypothesis was distinctly accepted.

For the total score of eight criterion items on self-concept, the mean of HH group was significantly higher than that of the remaining three groups, and the mean of HL group was also higher than that of LL group.

Out of the eight items on self-concept, three contain negative statements and five are stated positively. For all of negative items (73, 99, and 222), the mean of HH group was significantly lower than that of LL or LH group. That means adolescents who got higher acceptance from both parents than those who did not perceive themselves in less negative way. For positive items, the mean of HH group appeared significantly higher than that of LH or LL group, except Item 79. This item expresses that "at many things, I am better than most kids my age." From the examination of reponse choices, it was found that most of the subjects chose the middle point which indicates *somewhat true*. This seems to be a major reason why this item failed to differentiate the mean scores between groups.

The results presented here suggest that parental acceptance has a positive effect upon an adolescent's self-concept.

A favorable conception of oneself is esential to personal happiness and effective functioning. The most important single cause of a person's success or failure has to do with the question of what a person believes of himself (Jensen & Kingston, 1986, p. 108). Children and adults as well define themselves in the light of others' reactions to them. Parents can influence the self-concept of their children by exhibiting or modeling the self-confidence and self-reliance they expect in their children. Another way is to be consistently encouraging and supportive of their children. Parents should strive to be as accepting as possible and show children that they care. When children are accepted, they are free to grow and develop; when they are not accepted, they become defensive, impeding growth and development.

Table 11

Means, Standard Deviations, F, and Scheffe Test of Criterion Items on Self-concept by Four Levels of Parental Acceptance

#	Item	Parental acceptance level LL (n=153)	LH (n=18)	HL (n=41)	HH (n=229)	F[b]	Group difference[a]
64.	I have good qualities						
	M	3.392	4.111	3.780	3.969	10.917***	HH>LL
	SD	1.065	0.963	1.061	0.952		LH>LL
69.	I like myself						
	M	3.385	3.056	3.585	4.200	23.112***	HH>LL
	SD	1.130	1.259	1.161	0.929		HH>LH
							HH>HL
73.	I don't have much to be proud of						
	M	2.038	2.056	1.707	1.336	17.085***	HH<LL
	SD	1.063	1.349	1.078	0.851		HH<LH
79.	I am better than most kids						
	M	2.830	3.333	2.854	3.083	2.045	
	SD	1.081	1.029	1.256	1.266		
99.	I give up easily						
	M	2.420	2.111	2.200	1.769	12.563***	HH<LL
	SD	1.162	1.367	1.005	0.905		
102.	When things get tough, I keep trying						
	M	3.553	3.944	3.927	4.227	14.558***	HH>LL
	SD	1.011	1.259	1.034	0.918		
103.	I am glad I am me						
	M	4.052	3.611	4.610	4.694	17.909***	HH>LL
	SD	1.169	1.420	0.703	0.823		HH>LH
							HL>LH
222.	I am no good at all						
	M	2.556	2.611	2.335	1.967	10.742***	HH<LL
	SD	1.094	0.850	1.147	1.003		
	Total						
	M	3.525	3.660	3.814	4.138	10.029***	HH>LL
	SD	1.096	1.187	1.056	0.956		HH>LH
							HL>LL

Note. LL = Lower in mother's acceptance level and lower in father's; LH = Lower in mother's and higher in father's; HL = Higher in mother's and lower in father's; HH = Higher in mother's and higher in father's.

[a]Scheffe test for multiple comparison was done at the .05 level.

[b]F-values are for one-way ANOVA on individual items, and for the effect of between groups of two-way ANOVA with repeated measurements on one factor for the total score of the category.

***$p < .001$, one-tailed.

Children, who experience being loved and accepted as they are, have a priceless advantage in the formation of healthy self-esteem. Their parents tend to enjoy a high level of self-esteem (Branden, 1985, p. 28). Since the way we treat others generally reflects the way we treat ourselves. As Branden (1985, p. 29) indicated, to a child who had little or no experience of being treated with respect, self-disrespect feels natural. We tend to go on giving ourselves the messages that our parents once gave us.

Hypothesis 6: Parental Acceptance Level and Adolescents' Concerns about Ideal World

Hypothesis # 6 was that adolescents who score higher on the scale will show more positive concerns about ideal world. The results obtained are represented in Table 12. Again, this hypothesis was clearly accepted.

For the total score on three criterion items on ideal world-view, the mean of HH group was significantly higher than that of LL group. The same applies to all the individual items.

Item 153 states the subject's desire to have a world without hunger or poverty. The mean score of HH group was significantly higher than that of LL group. For Item 158, the mean score of HH and HL groups was higher than that of LL group. This item manifests the subject's wish to have a world without war. Item 36 refers to the subject's hope for the government to have to do more to help poor and hungry people. The mean score of HH and LH groups was significantly higher than that of LL group.

Table 12

Means, Standard Deviations, F, and Scheffe Test of Criterion Items on Ideal World-view by Four Levels of Parental Acceptance

#	Item	Parental acceptance level LL (n=153)	LH (n=18)	HL (n=41)	HH (n=229)	F[b]	Group difference[a]
36.	Government should help poor people						
	M	4.224	4.778	4.341	4.354	2.311*	HH>LL
	SD	0.875	0.428	0.938	0.909		LH>LL
153.	I want to have a world without hunger						
	M	3.711	4.000	3.756	4.034	3.045*	HH>LL
	SD	1.116	0.767	1.241	1.038		
158.	I want to have a world without war						
	M	3.882	4.056	4.317	4.288	8.042***	HH>LL
	SD	0.966	0.873	0.850	0.716		HL>LL
	Total						
	M	3.939	4.278	4.138	4.225	2.236*	HH>LL
	SD	0.986	0.689	1.009	0.887		

Note. LL = Lower in mother's acceptance level and lower in father's; LH = Lower in mother's and higher in father's; HL = Higher in mother's and lower infather's; HH = Higher in mother's and higher in father's.

[a]Scheffe test for multiple comparison was done at the .05 level.

[b]F-values are for one-way ANOVA on individual items, and for the effect of between groups of two-way ANOVA with repeated measurements on one factor for the total score of the category.

*$p < .05$, ***$p < .001$, one-tailed.

Parental Acceptance Level against Extra Criterion Items

After cluster analysis was carried on criterion items, eight items were excluded from the initial corresponding categories. However, in order to compare the mean scores of the four groups on these extra items, one-way analysis of variance was applied. The results obtained are presented in Table 13.

Item 91, which was initially classified into the criterion category of Self-Concept, states easiness for people to make the subject change his or her mind. The mean scores between four groups were not different significantly ($p = .052$). As revealed from the examination of the item responses, the subjects responded to the statement as *often* or *sometimes true*, which seems to be quite natural in the name of common sense. Item 95, which at first belonged to the Feeling of Isolation category, is concerned with the subject's uncomfortable feeling when being in a group of people. The mean score of HH group was significantly lower than that of LL group. Item 100, which was originally included in the criterion category of Self-Concept, is related to the subject's indecision about things. The means between groups did not differ significantly ($p = .08$) on this item. As in the case of Item 91, most of the subjects responded to this item as *sometimes true*, which was understandable. For Item 234 referring to the subject's difficulty to share feelings with others, the mean score of HH group was lower than that of LL group. The same held true for Item 269 which in the beginning pertained to the Antisocial Behavior category and which was designed to measure the frequency for the subject to have cheated on a test during the 12 months. Item 272, which also belonged to the same category as Item 269, is concerned with the frequency for the subject to beat up another child during the last 12 months. But, the mean difference between groups was not significant ($p = .15$). As expected, most of the subjects answered *about once*. Item 282 is related to the subject's thinking about the country and its problems, which was at first included in the category of Concerns about Social Problems. The mean score of HH group was significantly higher than those of HL and LL groups.

Table 13

Means, Standard Deviations, F, and Scheffe Test of Extra Criterion Items by Four Levels of Parental Acceptance

#	Item	Parental acceptance level LL (n=153)	LH (n=18)	HL (n=41)	HH (n=229)	F[b]	Group difference[a]
91.	Easy to make change my mind						
	M	2.634	2.500	2.439	2.362	2.065	
	SD	0.985	1.339	1.205	1.036		
95.	Uncomfortable in a group						
	M	2.608	2.444	2.341	2.218	3.415**	HH<LL
	SD	1.226	1.199	1.257	1.114		
100.	Hard to make up my mind						
	M	3.046	3.056	3.073	2.829	1.734	
	SD	1.059	1.349	1.034	0.969		
234.	Hard to share my feelings with others						
	M	3.124	3.444	3.536	2.938	4.402**	HH<HL
	SD	1.022	1.239	1.075	1.126		
269.	Cheat on a test						
	M	2.011	1.500	1.943	1.519	8.370***	HH<LL
	SD	1.181	0.858	1.048	0.859		
272.	Beat up another kid						
	M	1.880	1.611	1.773	1.667	1.204	
	SD	1.169	1.289	1.150	1.067		
282.	Think about our country's problems						
	M	2.758	3.000	2.878	3.415	11.281***	HH>LL
	SD	1.039	1.414	1.249	1.127		HH>HL
317.	Donate quarters to a poor, blind man						
	M	3.359	2.833	3.432	3.748	5.272***	HH>LL
	SD	1.237	1.339	1.411	1.200		HH>LH

Note. LL = Lower in mother's acceptance level and lower in father's; LH = Lower in mother's and higher in father's; HL = Higher in mother's and lower in father's; HH = Higher in mother's and higher in father's.

[a]Scheffe test for multiple comparison was done at the .05 level.

[b]F-values are for one-way ANOVA on individual items, and for the effect of between groups of two-way ANOVA with repeated measurements on one factor for the total score of the category.

**$p < .01$, ***$p < .001$, one-tailed.

The result was very similar for Item 317. This item, at the beginning come under the category of Helping Behavior, represents the willingness for the subject to donate quarters to a poor and blind man sitting on the street corner. The mean score of HH group was higher than those of LH and LL groups.

In summary, for five items out of eight, the mean score of HH group was significantly different from that of LL group. It can be concluded that the related hypotheses were also confirmed for extra criterion items.

F. Summary

There were five major sections in this chapter. The first section dealt with the results obtained from the application of a principal factor analysis to the interitem matrices of Pearson's correlations and of polychorics, respectively, on the sample size of 500, using 70 items selected from *the Youth Survey*. Two different measures of interitem correlations were almost the same, except that the polychorics were slightly larger in size than Pearson's correlations. Five orthogonal factors were extracted for each of the two analyses, and factor loadings on five factors by two different measures were almost the same in size and direction.

The second section dealt with the results of factor and cluster analyses for item selection. Principal factor analyses of interitem matrix of product-moment correlations were done using 70 items on the first half sample of size 500. Seven factors were extracted having associated eigenvalues greater than one. The first two factors reflected father's and mother's acceptance, which had high loadings on items 11 and 12, respectively. To compare these results, cluster analyses were applied to the interitem matrices of variance and covariance of 70 items on the same sample. Cluster analyses split the items into 13 clusters, of which the first two clusters having seven and six items each reflected parental acceptance. All of seven items of Cluster I were also present in Factor I, and all of six items of Cluster II were in Factor II.

The third section similarly dealt with the results of factor and cluster analyses, for cross-validation, performed again using the 70 items on the second half sample size of 500;

with those of item selection for final scales; and with reliabilities of the scales. Seven factors were extracted from factor analysis, of which the first two factors having 10 items each reflected parental acceptance. Cluster analyses produced 15 clusters, of which the first two clusters reflected parental acceptance, having six and seven items respectively. When the results of factor and cluster analyses on two samples were lumped together, Mother's and Father's Acceptance Factors were almost the same in size to one another, except that the factors from factor analyses had a few more items than did the clusters. Seven common items from the results of the four analyses formed the final scales. The mother form of the scales was identical to the father form. The mean of the total score for father's scale was 24.20 and that for mother's was 25.79. The difference between the two means was significant, t (999) = 5.51, $p<.001$. The correlation coefficient between the total score of mother's scale and that of father's was .516 ($p<.001$). In order to further increase the homogeneity of the scales, the method of ***reciprocal averages*** was applied to the responses for the items on the merged sample of size 1,000. The initial Hoyt's reliabilities of .8699 for mother's scale and .8983 for father's improved to .8704 and .8987, respectively.

The fourth section dealt with the results of cluster analyses on criterion items. The 33 items related to concerns which adolescents have about themselves and the world. These items were selected from ***the Youth Survey***, grouped into six categories, and examined the adequacy of the categories, using cluster analysis on the merged sample of size 1,000. Cluster analyses produced eight clusters, two of which had very low reliabilities, and could not be used to represent a factor in its own right.

Cluster I: three items, related to helping behavior.

Cluster II: four items, suggesting antisocial behavior.

Cluster III: three items, referring to feeling of isolation.

Cluster IV: four items, representing concerns about social problems.

Cluster V: eight items, reflecting self-concept.

Cluster VI: three items, expressing ideal world-view.

Eight items consisted of two clusters were dropped from the initial five categories, but were

utilized additionally as extra criterion items.

The last section dealt with the results of hypotheses testing for confirmation of construct validity of the scales. Four contrasting groups were formed on the basis of the subjects' total scores on parental acceptance scales, using the merged sample of size, 1,000. The rationale used for establishing construct validity was that adolescents who grew up under four contrasting types of parental behavior would show differences in predicted direction in their concerns on the criterion variables. The differences between the means of four contrasting groups on each of six criterion categories considered as a composite single criterion corresponding to each of research hypotheses were examined, using a two-factor design with repeated measures on one factor. The differences between the means of four groups on each of the criterion items including extra ones were analyzed by one-way ANOVA. Following a significant *F* test, multiple comparisons of the means for the groups were performed, using Scheffe's method with significance level of .05. All the six predictions made for these six criterion scales were clearly supported. Parental acceptance was found to be positively related to early adolescents' helping behavior, to concerns about social problems and about ideal world, to self-concept; and to be negatively associated with their feelings of isolation and antisocial behaviors. These relationships were confirmed for five out of the eight additional criterion items.

V. Summary and Conclusions

A. Summary

Parental Warmth, or Acceptance, one of the dimensions of parental behavior, occupies an important role in the socialization of children and, as such, deserves to be extensively studied. Although there are many measuring instruments on parental behavior, few meet the generally accepted psychometric criteria, including those of uni-dimensionality or factorial purity, internal consistency and construct validation. This study aimed at the development and validation of such scales.

The major questions to which this study addressed itself were seemingly simple:

1. Can a reliable scale for measuring paternal acceptance be developed, using responses to the items of an existing questionnaire?

2. Can the same be done also for maternal acceptance?

3. Do such scales have acceptable, if not high, levels of reliability?

4. Is there independent evidence to justify claiming that the scales measure the constructs of paternal and maternal acceptance?

Eight-thousand and one-hundred sixty-five students, mostly of Grades 5 through 9, had participated in a national survey in the U.S., conducted by the Search Institute, Minneapolis, Minnesota late in 1982 and early in 1983, by answering the *Youth Survey* containing 319 items. They constituted the population of this study. A random sample of 1,000 subjects from the above population was used in this research: half for developing the scales, and the other half for the cross-validation of the resulting scales.

Seventy items were selected from the *Youth Survey*, because they seemed to reflect the construct of Parental Acceptance, defined as a positively affective relationship with the child, embodying helping approach. Operationally, this variable is the sum total of such parental behavior toward the child as encouraging and helping. For developing the scales, the following analyses were used:

1. Principal factor analyses of (a) polychoric correlation coefficients and separately of (b) Pearson's r's on the first half sample, using 70 items.

2. The method of *homogeneous keying* applied to the interitem matrices of variances and covariances.

3. Repetition of steps # 1 and # 2 on the responses from the second half sample. The common items from the above analyses were included in the scales.

4. The method of *reciprocal averages* applied to the responses from the total sample of 1,000 respondents to further improve the internal consistency of the scales.

5. This was followed by setting-up and testing six hypotheses, using responses to 33 criterion items carefully selected from the *Youth Survey*. These items related to the concerns which young people normally have about themselves and the world in which they live. They were grouped into six categories, based on the results of previous studies (Rohner, 1980, 1984; 1986).

1. Helping Behavior (helping other people in various situations, for example; the school, the playground, and the neighborhood store).

2. Antisocial Behavior (drug abuse, drinking, stealing, vandalism, cheating, and beating others).

3. Feeling of Isolation (feeling lonely, difficulties related to being in a group, or in making friends, or in sharing feelings with others, or the feeling that one is not being understood).

4. Concerns about Social Problems (such as poverty, hunger, drug, violence, helping others, and the country at large).

5. Self-Concept (personal worth, pride, self-confidence, self-determination, and persistence).

6. World-View (views about social welfare, wars and poverty).

These items were cluster analyzed, and some of them were excluded from the six areas. They were, however, utilized as additional individual criterion items.

The rationale used for establishing construct validity was that adolescents who grew up under two contrasting types of parental behavior, such as parental acceptance and lack of it, would show differences in predicted direction in their concerns on the criterion variables. The scores of the subjects were analyzed, using two-factor design with repeated measurements on one factor for the six groups of items and one-way analysis of variance for individual items. Multiple comparisons of the means for the groups were made where applicable, using Scheffe's method, with significance level of .05.

B. Conclusions and Implications

The two different measures of interitem relationship seemed to be almost equal in size to each other, except that the polychorics were slightly larger. Also, the factor loadings on five major factors resulting from the use of the two different measures were almost the same in size and direction. Additionally, the proportion of common variance for the five factors were very similar. The number of items identified under each factor were also almost the same, with the disagreements limited to only 7 items out of 70. It was concluded, therefore, that when discrete data which show nearly normal distribution are available, a correlation matrix for factor analysis may consist of either Pearson's product-moment correlations or polychorics.

Seven factors were extracted from a *principal factor analysis* of the interitem matrix of Pearson's r's, using 70 items on the first half sample. Factor I had 11 items reflecting Father's Acceptance. Factor II consisted of 12 items referring to Mother's Acceptance. The method of *homogeneous keying* produced 13 clusters. Cluster I contained seven items related to Father's Acceptance, and Cluster II had six items representing Mother's Acceptance.

Seven factors were extracted from factor analysis on the second half sample used for cross-validation. Ten items had high loadings on Factor I describing Father's Acceptance, and also 10 items on Factor II indicating Mother's Acceptance. Cluster analysis produced 15 clusters, among which Cluster I having six items was related to Father's Acceptance and Cluster II containing seven items reflected Mother's Acceptance. Comparing the results from

factor and cluster analyses on the two half samples, Mother's and Father's Acceptance factors were found to be almost the same in size to one another, except that factors had a few more items than the clusters. It is interesting to note that the results from the two analyses on the first half sample were almost the same as those on the second half sample. This finding provided a certain level of cross-validation.

A cluster and its corresponding factor tended to contain almost the same items, except that the cluster tended to be smaller in size. The choice of a particular multivariate method for extracting scales thus does not seem to be crucial. The selection of one or the other should be guided by pragmatic rather than theoretical considerations. Because the inclusion of an item in a cluster is determined by quantitative criteria given by DuBois, Loevinger and Gleser (1952), and this guidance is not provided by factor analytic techniques, cluster analysis would seem to be preferable for developing internally consistent tests.

Parental Acceptance factor emerged on Factors or Clusters I and II on both samples. Seven common items from these two factors or clusters were selected to form the final scales. The mother-form of the scale was identical to the father-form. Interitem correlations for the scales were medium in size, and those between the two scales were low. The mean of the mother's scale was significantly higher than that of the father's. This was consistent with the results of previous research.

When the method of *reciprocal averages* (Mosier, 1943) was applied to the responses for the items in order to further increase the homogeneity of the scales, the initial Hoyt's reliabilities of .8699 for mother's scale and .8983 for father's improved marginally to .8704 and .8987, respectively. The use of differential weights for the item responses slightly improved the internal consistency on each scale. Its use can be recommended, therefore, in those situations in which computer facilities are available.

Even though they had a small number of items, the scales were definitely homogeneous and internally consistent. This suggests that the reliability of many tests can actually be increased by omitting those items from the test which show low intercorrelations.

For establishing construct validity, 33 criterion items were grouped into six categories. The method of *homogeneous keying* produced eight clusters, two of which had very low reliabilities. The latter clusters had eight items which were utilized individually as criterion items. All the six predictions made for these six scales were clearly sustained. Parental acceptance was thus found to be positively related with early adolescents' helping behavior, concerns about social problems and about ideal world, self-concept, and negatively related with their feelings of isolation and antisocial behaviors. This relationship was also confirmed for five out of the eight additional criterion items. Thus, the theory of parental acceptance and rejection of Rohner (1984, 1986) and the importance of parental acceptance in child-rearing practices were again supported on a more varied and relatively larger sample of adolescents.

In general, the relationships of parental acceptance level with six criterion behaviors were limited only to those adolescents who perceived both parents (not one or the other) as higher or lower in acceptance. This finding implies that parental acceptance is more effective when both parents show it--father's acceptance is as important as that of mother's.

C. Suggestions for Further Research

1. This study did not attempt to identify sex differences in early adolescents with respect to parental acceptance. One could classify the subjects into boys and girls and compare their means on fathers' and mothers' acceptance. Paternal behavior may have different effects on sons and daughters from maternal behavior.

2. The subjects of this study were early adolescents in the age range 9 to 15 years. If one were to extend the subjects' age range both downwards (elementary school students) and upwards (senior high school students, university students, and adults) perceived parental acceptance may be found to vary with the subjects' age.

3. Though parental acceptance is known not to be different between working class and middle class in the U.S. (Rohner, 1986, p. 102), this might not be true in a different society. For example, the higher the socio-economic status of the parents, the less the parental

rejection and the less the difference in parental acceptance perceived by children may be. Roberts (1987) found that, in a Canadian sample of 30 families, parental socio-economic status was related to parental warmth ($r = .42$, $p<.05$ for mothers; $r = .32$, $p<.10$ for fathers).

4. There are certain cultures in which the male is the preferred child. In these cases, parental values could reflect on the parental behavior toward their children, showing some differences in the perceived parental acceptance by children according to their sex.

5. This study depended upon available data and had certain limitations. For example, criterion behaviors related to cognitive development should be examined in connection with parental acceptance. There is evidence suggesting that parent-child relationships marked by substantial warmth is associated with cognitive performance. Estrada and others (1987) found that parental warmth or acceptance was significantly correlated with school achievement at age 12. Both the achievement test scores and grade point averages of children, especially of boys, are known to vary directly with perceived parental acceptance (Rohner, 1986). Lamb (1981, p. 21) and Radin and Russell (1983, p. 197) argued that both parents, especially fathers, emphasize achievement and competition in boys more than in girls.

6. Adolescent suicide and sex role development are other criterion behaviors to be examined in connection with parental acceptance. Suicide is one of the three primary causes of mortality during adolescence. According to Millstein (1989, p. 838), between early (ages 10-14) and late adolescence (ages 15-19), suicide rates increase by 600%. Especially, male adolescents have shown steady increases. Edwards and Lowe (1988) said that the number of teenage suicide has tripled in the last 30 years and each year, 500,000 teenagers in America attempt suicide. Among them, 5,000 are found to succeed (Neiger & Hopkins, 1988). Adolescent suicide frequently reflects a lack of parental acceptance. Such a lack may cause a child in the family to be devoid of a deeply felt sense of being a lovable and valuable person, leaving him or her vulnerable to intense suicidal compulsion (Brown, 1985, p. 71). In fact, 47% of the parasuicidal patients ($n = 43$) reported a pattern of exposure to neglectful parenting in childhood (Silove, George & Bhavani-Sankaram, 1987). And when parental

attributes were studied, parents of adolescents who attempted suicide were found to be more hostile and indifferent toward their children, and displayed overt rejection (Neiger & Hopkins, 1988). In studies of suicidal adolescents, researchers (Baumeister, 1990, p. 95; Dukes & Lorch, 1989, p. 239) found that feelings of personal worthlessness, rejection, inadequate love and support provided by family members are central factors. To feel one's self a lovable person in the minds of others, a person must have experienced a genuine mutuality of emotion in one's life. This is established through ongoing empathic interactions between parents and children.

Also, Radin and Russell (1983) found that assertive, independent behavior in daughters is negatively associated with high acceptance by parents, that is, too much warmth and support are associated with passivity in girls.

7. In this study, cross-validation was performed by visually examining the results of exploratory factor analyses on two samples. If an exploratory factor analysis were done on the first half sample and a confirmatory factor analysis on the second one, then cross-validation would have conducted better in terms of more rigorous comparison. Another way to deal with it, is to apply a coefficient of congruence (Harman, 1976, p. 343) between the loadings of corresponding factors for two samples, roughly resembling a coefficient of correlation. In situations where factors from two samples can be matched visually, and the number of variables common to the samples is small, it can be expected that the coefficient will be very high.

8. If one can get observation or interview data on parental acceptance or test data on parental control which is related to but distinct from acceptance, convergent or divergent validity of the scale would be achieved. Rosenthal and Rosnow (1984, p. 78) pointed out that assessing construct validity ideally depends on two processes: (a) the testing for a convergence across different measures or manipulations of the same behavior, and (b) the testing for a divergence between measures or manipulations of related but conceptually distinct behaviors. Due to the use of existing data, this kind of construct validation could not be undertaken in this study.

9. One of the purposes of this study was to develop a homogeneous, uni-factor scale on parental acceptance. This approach could lead to what Messick (1989, p. 34; 1989a, p. 7) called "construct underrepresentation," one of the threats to construct validity. This means that the test is too narrow and fails to include important dimensions or facets of the construct. It will be recalled that, while theorizing, parental acceptance was not conceptualized as a multidimensional construct. In this study, it was found that four items (108, 133, 167, and 192) reflecting Parental Love were correlated with Parental Acceptance ($r = .45$). Also, Russell and Russell (1989) found that, in a sample of 54 volunteer families, parental warmth was positively associated with parental behaviors such as active concern ($r = .41$, $p<.05$), physical affection ($r = .33$, $p<.05$), and caretaking ($r = .45$, $p<.01$). If parental acceptance scale includes love, praise, and concern in addition to helping or caring, the concept will be broadened. Then one would possibly account for larger variance in criterion behaviors than it does currently.

10. Another interesting question to be explored for future research is the effects on children of different forms of rejection (for example, hostility versus negligence), the effects of intermittent or inconsistent rejection versus chronic, continuous rejection, and the extent of the part children themselves play as provokers of their own rejection. As Rohner (1980, p. 16) put it, there seems to be little doubt in the study of parental acceptance and rejection that one should take into account the personal and behavioral characteristics of the child as an instigator of parental action, just as one takes into account the personal and behavioral characteristics of the parents, or of the salient characteristics of the situation where parent and children interact.

> ...The Child is Father of the Man; And I could wish my days to be bound each to each by natural piety. (William Wordsworth, "My Heart Leaps Up," 1802)

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Appendix A

The 70 Items Selected from the Youth Survey Questionnaire

The 70 Items Selected from the Youth Survey Questionnaire

For Items 49, 50, and 55, your response choices are:

SA. Strongly agree

A. Agree

NS. Not sure

D. Disagree

SD. Strongly disagree

49. My parents have a lot of dumb rules.

50. My parents almost always trust me.

55. My parents try to make all my decisions for me.

For Items 67 and 78, your response choices are:

N. Not at all true

L. A little true

S. Somewhat true

Q. Quite true

V. Very true

67. My parents and I disagree on what is important in life.

78. My parents expect too much of me.

107. How much of the time do you live with your mother?

A. All of the time

B. Most of the time

C. Some of the time

D. I visit her once in a while

E. Never live with her and never visit her

108. How often does your mother say things to you like "I love you" or "I'm proud of you?"

A. Everyday

B. A couple of times a week

C. 1 to 4 times a month

D. Less than once a month

E. Never

For Items 109 through 130, your response choices are:

VO. Very often true

OT. Often true

S. Sometimes true

O. Once in a while

N. Never true

109. When I do something my mother does not like, she acts cold and unfriendly.

110. If I think a rule at home is not fair, I can talk to my mother about it.

111. My mother keeps pushing me to do my best in whatever I do

112. My mother encourages me to make some of my own decisions.

113. When I do something wrong, my mother slaps or hits me.

114. My mother makes me feel as if I am nothing but trouble.

115. My mother lets me off easy when I do something wrong.

116. My mother orders me around.

117. My mother expects me to believe she is always right.

118. My mother gives in when I make a fuss.

119. My mother tries to help me feel better when I am upset or scared.

120. My mother lets me do whatever I want.

121. When I do something wrong, my mother yells or shouts at me.

122. My mother seems to like it better when I'm not around.

123. When I do something wrong, my mother takes the time to help me see why it was wrong.

124. When my mother punishes me, she explains why she is doing it.

125. My mother gives me a chance to talk over rules I don't understand or like.

126. When I do something wrong, my mother makes me stay in the house or won't let me be with my friends.

127. My mother is patient and kind with me.

128. My mother tries to help me see why rules are necessary and important.

129. My mother helps me when I have a problem.

130. My mother won't let me discuss the rules she makes.

131. During an average day, how much time does your mother spend alone with you doing things like talking, playing, or just being together?

A. Less than 5 minutes

B. From 5 to 30 minutes

C. From 30 minutes to 1 hour

D. 1 or 2 hours

E. 3 or 4 hours

132. Overall, how important do you think religion is in your mother's life?

A. Not important

B. Slightly important

C. Somewhat important

D. Important

E. Extremely important

133. How often does your mother hug or kiss you or put her arms around you?

A. Everyday

B. A couple of times a week

C. 1 to 4 times a month

D. Less than once a month

E. Never

143. What I want in life is to make my parents proud of me.

VL. Very little or not at all

S. Somewhat

Q. Quite a bit

VM. Very much

T. At the top of the list

166. How much of the time do you live with your father?

A. All of the time

B. Most of the time

C. Some of the time

D. I visit him once in a while

E. Never live with him and never visit him

167. How often does your father say things to you like "I love you" or "I'm proud of you?"

A. Everyday

B. A couple of times a week

C. 1 to 4 times a month

D. Less than once a month

E. Never

For Items 168 through 189, your choices are:

VO. Very often true

OT. Often true

S. Sometimes true

O. Once in a while true

N. Never true

168. When I do something my father does not like, he acts cold and unfriendly.

169. If I think a rule at home is not fair, I can talk to my father about it.

170. My father keeps pushing me to do my best in whatever I do

171. My father encourages me to make some of my own decisions.

172. When I do something wrong, my father slaps or hits me.

173. My father makes me feel as if I am nothing but trouble.

174. My father lets me off easy when I do something wrong.

175. My father orders me around.

176. My father expects me to believe he is always right.

177. My father gives in when I make a fuss.

178. My father tries to help me feel better when I am upset or scared.

179. My father lets me do whatever I want.

180. When I do something wrong, my father yells or shouts at me.

181. My father seems to like it better when I'm not around.

182. When I do something wrong, my father takes the time to help me see why it was wrong.

183. When my father punishes me, he explains why he is doing it.

184. My father gives me a chance to talk over rules I don't understand or like.

185. When I do something wrong, my father makes me stay in the house or won't let me be with my friends.

186. My father is patient and kind with me.

187. My father helps me see why rules are necessary and important.

188. My father helps me when I have a problem.

189. My father won't let me discuss the rules he makes.

190. During an average day, how much time does your father spend alone with you doing things like talking, playing, or just being together?

A. Less than 5 minutes

B. From 5 to 30 minutes

C. From 30 minutes to 1 hour

D. 1 or 2 hours

E. 3 or 4 hours

191. Overall, how important do you think religion is in your father's life?

A. Not important

B. Slightly important

C. Somewhat important

D. Important

E. Extremely important

192. How often does your father hug or kiss you or put his arms around you?

A. Everyday

B. A couple of times a week

C. 1 to 4 times a month

D. Less than once a month

E. Never

For Items 199 and 203, your responses are:

VM. Very much

Q. Quite a bit

S. Somewhat

VL. Very little

N. Not at all

199. I worry that one of my parents will hit me so hard that I will be badly hurt.

203. I worry that one of my parents might die.

220. I get mad at my parent(s) (or guardians).

A. Very often

B. Often

C. Sometimes

D. Once in a while

E. Never

223. I wish I had different parent(s)(or guardians).

A. Very often

B. Often

C. Sometimes

D. Once in a while

E. Never

236. My parents let me make my own decisions.

A. Very often true

B. Often true

C. Sometimes true

D. Once in a while true

E. Never true

264. Compared with parents of other kids I know, my parents(or parent) are:

A. A lot more strict

B. A little more strict

C. About the same

D. A little less strict

E. A lot less strict

265. When I do something that my parents(or parent) like, they let me know they are pleased or happy about it.

A. Very often true

B. Often true

C. Sometimes true

D. Seldom true

E. Never true

266. When I disobey my parents(or parent):

A. I always get punished

B. I get punished most of the time

C. I get punished some of the time

D. I get punished once in a while

E. I never get punished

267. There is a lot of love in my family.

A. Not true

B. Slightly true

C. Somewhat true

D. Quite true

E. Very true

271. During the last 12 months, how often have you lied to one of your parents?

A. Not at all

B. Once or twice

C. 3 to 5 times

D. 6 to 10 times

E. 11 times or more

Appendix B

The 33 Criterion Items

The 33 Criterion Items

Helping Behavior

313. Imagine that several weeks after school starts a new kid your age comes to your school. This person knows no one in your school. Would you try to be friendly to this person?

A. No

B. Probably not

C. Maybe--not sure

D. Probably

E. Yes

314. Imagine yourself walking by a grocery store. You are alone and don't know any of the people around you. A woman drops a bag of groceries all over the sidewalk. Would you stop to help her pick up the groceries?

(Response choices are the same on the above)

315. Imagine you saw a little kid fall and get hurt on a playground. Would you run over and try to help?

(Response choices are the same on the above)

Antisocial Behavior

256. In the last 12 months, have you used marijuana(pot, grass, dope)?

A. No

B. Yes, 1 or 2 times

C. Yes, 3 to 5 times

D. Yes, 6 to 9 times

E. Yes, 10 to 19 times

F. Yes, 20 times or more

257. In the last 12 months, have you had beer, wine, or liquor to drink? (Do not count the times you took just a sip of someone else's drink)

(Response choices are the same on the above)

268. During the last 12 months, how often have you taken something from a store without paying for it?

A. Not at all

B. Once or twice

C. 3 to 5 times

D. 6 to 10 times

E. 11 times or more

270. During the last 12 months, how often have you damaged or destroyed property(for example, broken windows or furniture, put paint on walls or signs, put scratches or dents in a car) at school or somewhere else?

(Response choices are the same on the above)

Feeling of Isolation

89. I have a hard time making friends.

A. Almost always true

B. Often true

C. Sometimes true

D. True once in a while

E. Never true

90. I am a lonely person.

(Response choices are the same on the above)

96. I feel no one understands me.

(Response choices are the same on the above)

Concerns about Social Problems

145. What I want in life is to do things which help people.

VL. Very little or not at all

S. Somewhat

Q. Quite a bit

VM. Very much

T. At the top of the list

202. I worry about all the drugs and drinking I see around me.

VM. Very much

Q. Quite a bit

S. Somewhat

VL. Very little

N. Not at all

204. I worry about all the people who are hungry and poor in our country.

(Response choices are the same on the above)

211. I worry about all the violence that happens in our country.

(Response choices are the same on the above)

Hope for Ideal World

36. I think our government should do more to help people who are poor and hungry.

SA. Strongly agree

A. Agree

NS. Not sure

D. Disagree

SD. Strongly disagree

153. What I want in life is to have a world without hunger or poverty.

VL. Very little or not at all

S. Somewhat

Q. Quite a bit

VM. Very much

T. At the top of the list

158. What I want in life is to have a world without war.

(Response choices are the same on the above)

Self-Concept

64. I feel I have a number of good qualities.

N. Not at all true

L. A little true

S. Somewhat true

Q. Quite true

V. Very true

69. On the whole, I like myself.

(Response choices are the same on the above)

73. I feel I do not have much to be proud of.

(Response choices are the same on the above)

79. At many things, I am better than most kids my age.

(Response choices are the same on the above)

99. I give up easily.

A. Almost always true

B. Often true

C. Sometimes true

D. True once in a while

E. Never true

102. When things get tough, I keep trying.

(Response choices are the same on the above)

103. All in all, I am glad I am me.

(Response choices are the same on the above)

222. At times I think I am no good at all.

A. Very often

B. Often

C. Sometimes .

D. Once in a while

E. Never

Extra

91. It is easy for people to make me change my mind.

A. Almost always true

B. Often true

C. Sometimes true

D. True once in a while

E. Never true

95. I feel uncomfortable when I am in a group of people.

(Response choices are the same on the above)

100. It is hard for me to make up my mind about things.

(Response choices are the same on the above)

•234. It is hard for me to share my feelings with other people.

A. Very often true

B. Often true

C. Sometimes true

D. Once in a while true

E. Never true

269. During the last 12 months, how often have you cheated on a test at school?

A. Not at all

B. Once or twice

C. 3 to 5 times

D. 6 to 10 times

E. 11 times or more

272. During the last 12 months, how often have you hit or beat up another kid?

(Response choices are the same on the above)

282. How often do you think about our country and the problems it has?

A. Never

B. Once in a while

C. Sometimes

D. Often

E. Very often

317. You have four quarters in your pocket. You plan to spend this money playing videogames at a store down the street. As you are walking along, you see a blind man sitting on the corner. He has a tin cup on the ground beside him. The money people put in his cup he uses to buy food. You are sure this man is really not just pretending to be poor. Would you put any of your money in this cup?

A. No, I would not give him any money

B. I'm not sure what I would do

C. I would give him one of my quarters

D. I would give him two or three of my quarters

E. I would give him all four of my quarters

Appendix C

Supplementary Tables

1. A Sample of Interitem Correlation Coefficients by Two Different Measures.
2. Factor Loadings of Seven Factors on Sample A.
3. Biserial Correlations for 13 Clusters on Sample A.
4. Correlation Matrix for 13 Clusters on Sample A.
5. Factor Loadings of Seven Factors on Sample B.
6. Biserial Correlations for 15 Clusters on Sample B.
7. Correlation Matrix for 15 Clusters on Sample B.
8. Interitem Correlations for Parental Acceptance Scale on Samples A and B.
9. Means and Standard Deviations of Parental Acceptance Scale on Samples A and B.
10. Changes in Weights of Item Response for Mother's Acceptance Scale, using the Method of Reciprocal Averages.
11. Changes in Weights of Item Response for Father's Acceptance Scale, using the Method of Reciprocal Averages.
12. Cluster Correlation Matrix for Criterion Items.
13. Interitem Correlation for Criterion Items.
14. Two-Way ANOVA with Repeated Measures on Items.
15. One-Way ANOVA for Comparing Mean Difference between Four Levels of Parental Acceptance by Items.

Table C-1

A Sample of Inter item Correlation Coefficients by Two Different Measures

Item no.	Product-moment				Polychoric			
	49	50	55	67	49	50	55	67
49	-	584	-002	031	-	584	-003	032
50	584	-	-031	016	584	-	-033	016
55	-002	-031	-	643	-003	-033	-	714
67	031	016	643	-	032	016	714	-
78	034	027	178	286	041	029	216	335
107	046	001	197	234	055	003	223	278
108	-131	-092	055	067	-127	-086	073	092
109	-013	-057	594	491	-018	-069	649	537
110	010	-044	056	064	014	-045	078	088
111	057	028	077	092	058	020	080	111
112	094	115	184	186	095	118	204	208
113	-044	-001	151	117	-043	004	201	137
114	-069	-078	-042	-029	-076	-081	-053	-029
115	-207	-250	015	-014	-211	-260	014	-015
116	-009	-020	125	086	-008	-018	148	100
117	069	060	075	078	077	068	086	089
118	-025	021	-120	-052	-028	032	-108	-038
119	016	-041	140	125	018	-039	148	128
120	-053	-047	206	177	-078	-068	314	286
121	-041	-059	062	048	-050	-069	100	077
122	-016	-027	051	099	-010	-026	045	101
123	045	087	-027	003	015	062	-007	018
124	-133	-097	003	-024	-245	-126	031	-038
125	084	093	080	043	091	101	096	050
126	-087	-000	-093	-078	-085	-001	-104	-092
127	-087	-114	-107	-053	-104	-131	-130	-061
128	068	024	031	070	067	021	043	080
129	-007	019	135	046	-000	029	178	061

continued

(Table C-1 continued)

Item no.	Product-moment				Polychoric			
	49	50	55	67	49	50	55	67
130	010	-012	-137	-098	009	-015	-158	-109
131	-147	-087	-045	-080	-144	-071	-048	-115
132	-172	-162	-022	-060	-181	-163	-040	-092
133	-072	037	-057	034	-079	034	-060	042
143	-059	-024	095	077	-059	-022	100	067
166	-109	-035	063	043	-115	-034	066	043
167	050	026	-071	-068	054	033	-078	-077
168	-009	040	061	039	-009	046	058	039
169	039	057	-058	026	038	051	-058	045
170	-088	-107	-125	-184	-087	-112	-144	-229
171	055	006	064	037	072	017	080	042
172	029	050	032	037	028	047	039	055
173	053	039	054	038	059	040	057	037
174	051	017	107	150	048	016	121	167
175	-165	-137	-060	-054	-175	-140	-064	-053
176	063	-005	-011	025	067	-009	-013	029
177	-047	-032	-058	-060	-046	-037	-068	-069
178	-091	-112	-051	-024	-097	-119	-056	-027
179	-067	-070	-090	015	-086	-080	-111	036
180	-048	-029	008	-067	-043	-031	010	-100
181	-045	-044	-009	-035	-051	-048	-009	-036
182	-000	054	-065	-083	-000	057	-072	-090
183	052	017	163	-005	058	021	188	-047
184	-103	-122	-055	-093	-109	-126	-058	-098
185	007	-012	-095	-103	015	-001	-103	-120
186	138	073	057	095	143	077	064	108
187	-047	-082	-000	055	-049	-086	-011	062
188	-034	011	136	135	-033	016	149	155
189	-086	-092	021	005	-091	-088	037	024
190	033	005	-016	008	036	010	-017	004

continued

(Table C-1 continued)

Item no.	Product-moment				Polychoric			
	49	50	55	67	49	50	55	67
191	103	104	-006	034	101	095	-011	036
192	046	048	-022	-018	043	056	-027	-017
199	120	069	031	034	147	084	021	020
203	020	059	-022	-082	032	076	-024	-095
220	-097	-048	-083	-115	-114	-048	-106	-153
223	033	-011	-117	-074	040	-032	-250	-147
236	-042	-016	-141	-106	-033	-015	-161	-114
264	-018	-024	-237	-247	-009	-027	-323	-341
265	111	097	003	-028	121	109	-014	-046
266	-089	031	015	053	-092	-031	033	073
267	170	172	008	084	176	130	009	093
271	033	033	-097	-070	036	031	-098	-071

Note. n=500. Decimal is understood before all the entries.

Table C-2

Factor Loadings of 7 Factors on Sample A

Item no.	Factor I	II	III	IV	V	VI	VII	h^2
49								308
50								235
55								300
67								210
78								283
107						411		197
108		430					494	513
109			486					276
110		484						331
111								187
112		545						371
113			428					301
114			421					364
115					409			190
116			582					407
117			468					327
118					431			222
119		572						483
120					546			322
121			522					352
122			418					429
123		643						519
124		569						461
125		643						617
126			420					302
127		618						540
128		691						557
129		630						516
130								168

continued

(Table C-2 continued)

Item no.	Factor I	II	III	IV	V	VI	VII	h^2
131								161
132								125
133		505					560	631
143								133
166						495		335
167	526						482	570
168				471				288
169	702							528
170								219
171	512							352
172				570				359
173				528				391
174					471			250
175				618				443
176				485				308
177					424			238
178	702							594
179					507			299
180				553				379
181				492				426
182	735							595
183	729							577
184	738							634
185				456				263
186	656							594
187	738							591
188	734							655

continued

(Table C-2 continued)

Item no.	Factor I	II	III	IV	V	VI	VII	h^2
189				419				224
190								181
191								224
192	467						520	555
199								201
203								058
220			449					292
223								406
236								227
264								155
265		437						324
266								234
267								249
271								110
no.of items	11	12	9	9	6	2	4	
a	11.39	3.97	2.97	2.11	1.56	1.12	1.04	
b	25.04	23.71	14.53	14.22	8.22	7.79	6.50	100.00
c	24.98	23.66	14.50	14.18	8.20	7.77	6.49	

Note. n = 500. Decimal is understood before all the entries. Cut-off point of factor loadings is .400.

[a]eigenvalues. [b]% of common variance. [c]% of total variance.

Table C-3
Biserial Correlations for 13 Clusters on Sample A

Item no.	Cluster I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	XIII
49						615							
50						532							
55						620							
67						544							
78						630							
107										566			
108			762										
109								661					
110						549							
111												772	
112						577							
113								669					
114				646									
115									555				
116				542									
117						533							
118									580				
119		(574)		591									
120									627				
121								676					
122				692									
123		764											
124		774											
125		790											
126								635					

continued

(Table C-3 continued)

Item no.	Cluster I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	XIII
127		749											
128		803											
129		754											
130											685		
131							642						
132										665			
133			769										
143													550
166										672			
167			796										
168					680								
169							735						
170												773	
171							599						
172					663								
173				589									
174									613				
175					729								
176					655								
177									633				
178	802												
179									604				
180					718								
181				637									
182	808												
183	792												
184	789												
185											669		

continued

(Table C-3 continued)

Item no.	Cluster I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	XIII
186	764												
187	824												
188	821												
189											706		
190							745						
191										734			
192			820										
199								614					
203													
220						496							
223				631									
236						480							
264													626
265				567									
266												493	
267				575									
271													692
no. of items	7	6	4	9	5	10	4	5	6	4	3	3	3
KR-20	.91	.86	.79	.78	.72	.75	.62	.66	.65	.57	.44	.45	.22

Note. n=500. Decimal is understood before all the entries.

Table C-4

Correlation Matrix for 13 Clusters on Sample A

Cluster	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII
I	-											
II	474	-										
III	488	439	-									
IV	421	533	456	-								
V	276	141	161	438	-							
VI	389	596	348	651	317	-						
VII	598	400	314	343	186	352	-					
VIII	192	336	206	524	417	462	148	-				
IX	-060	-020	-060	092	111	-040	-084	-004	-			
X	323	241	348	316	086	236	179	170	080	-		
XI	221	204	160	406	422	354	152	366	075	114	-	
XII	-162	-090	-100	-019	161	012	-155	167	-101	-135	046	-
XIII	154	277	175	333	080	319	172	193	-014	142	061	065

Note. n=500. Decimal is understood before all the entries.

Table C-5

Factor Loadings of 7 Factors on Sample B

Item no.	Factor I	II	III	IV	V	VI	VII	h^2
49				468				314
50								192
55				497				292
67								178
78				486				355
107								195
108		428			585			567
109								321
110		462						306
111							472	283
112								314
113								302
114		415						445
115						472		260
116								334
117				448				320
118						443		222
119		529						481
120						500		270
121								328
122								383
123		655						521
124		562						455
125		685						609
126								267
127		543						553
128		620						536
129		544						476

continued

(Table C-5 continued)

Item no.	Factor I	II	III	IV	V	VI	VII	h^2
130								276
131								253
132								161
133					599			503
143								189
166								217
167					709			659
168			526					409
169	608							419
170							437	376
171	479							366
172			672					501
173			604					522
174						529		387
175			607					407
176			469					308
177						540		340
178	674							580
179						557		342
180			641					446
181			436					373
182	700							545
183	670							525
184	701							581
185			510					279
186	536							498
187	682							554
188	706							597

continued

(Table C-5 continued)

Item no.	Factor I	II	III	IV	V	VI	VII	h^2
189								255
190								223
191								248
192	406				613			550
199			444					250
203								053
220								216
223								244
236								229
264								152
265								247
266						424		265
267								304
271								107
no. of items	10	10	9	4	4	7	2	
a	12.33	3.98	2.94	2.41	1.72	1.26	1.03	
b	22.89	18.98	18.85	12.78	11.19	9.32	5.99	100.00
c	22.85	18.94	18.91	12.75	11.17	9.29	5.99	

Note. n = 500. Decimal is understood before all the entries. Cut-off point of factor loadings is .400.

[a]eigenvalues. b% of common variance, c% of total variance.

Table C-6
Biserial Correlations for 15 Clusters on Sample B

Item no.	Cluster														
	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	XIII	XIV	XV
49							765								
50															550
55							735								
67													680		
78							787								
107													675		
108			769												
109						628									
110											655				
111								694							
112								627							
113						578									
114						702									
115														702	
116						639									
117						621									
118														696	
119		699													
120														690	
121						661									
122						667									
123		765													
124		736													
125		752													
126										793					
127		732													
128		794													
129		744													

continued

(Table C-6 continued)

Item no.	Cluster I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	XIII	XIV	XV
130						565									
131											768				
132												713			
133			765												
143												526			
166													755		
167			856												
168									679						
169															610
170								773							
171								664							
172				804											
173				749											
174					801										
175				744											
176									589						
177					769										
178	790														
179					739										
180				795											
181									615						
182	811														
183	791														
184	773														
185										780					
186	(601)								611						
187	797														

continued

(Table C-6 continued)

Item no.	Cluster														
	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	XIII	XIV	XV
188	802														
189									526						
190											757				
191												739			
192			803												
199									592						
203															
220									502						
223									549						
236															542
264															522
265												564			
266										615					
267									529						
271															561
no. of items	6	7	4	4	3	8	3	4	9	3	3	4	3	3	5
KR-20	.88	.87	.81	.78	.66	.78	.64	.64	.75	.57	.55	.52	.46	.47	.44

Note. n=500. Decimal is understood before all the entries.

Table C-7

Correlation Matrix for 15 Clusters on Sample B

Cluster	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	XIII	XIV
I	-													
II	552	-												
III	430	452	-											
IV	293	243	166	-										
V	-141	085	091	-088	-									
VI	260	537	280	470	145	-								
VII	313	331	278	382	051	479	-							
VIII	465	423	340	100	-033	125	138	-						
IX	488	368	338	653	086	565	447	228	-					
X	009	049	045	370	-123	300	206	-067	281	-				
XI	418	494	338	234	-029	312	216	334	301	077	-			
XII	378	427	420	253	141	345	287	255	401	042	309	-		
XIII	139	184	328	122	087	249	308	081	257	059	094	212	-	
XIV	001	081	-021	-051	-455	-004	-028	067	-141	173	062	-110	-069	-
XV	493	420	310	342	-168	354	439	293	428	139	344	247	162	130

Note. n=500. Decimal is understood before all the entries.

Table C-8

Inter item Correlations for Parental Acceptance Scale on Samples A and B

Item no.	119	123	124	125	127	128	129	178	182	183	184	186	187	188
119	-	419	406	380	505	485	517	344	252	305	249	211	291	243
123	417	-	511	546	450	532	498	296	368	322	295	179	345	262
124	339	530	-	507	407	514	432	305	305	473	361	231	384	275
125	453	489	539	-	421	551	460	310	340	365	461	204	324	310
127	517	467	468	501	-	561	544	323	293	287	233	402	317	294
128	435	556	524	597	520	-	506	341	335	361	336	284	424	348
129	526	497	466	477	577	542	-	359	340	351	334	273	284	312
178	366	213	188	290	269	289	279	-	615	503	511	515	522	611
182	303	360	322	357	300	321	278	598	-	602	536	464	545	560
183	212	319	387	348	222	267	264	525	573	-	540	356	571	531
184	253	304	344	454	311	332	282	522	582	621	-	458	556	527
186	279	161	218	238	303	244	235	555	526	523	554	-	500	581
187	264	255	257	370	254	321	252	611	628	615	578	557	-	620
188	356	246	277	304	313	317	383	673	608	552	546	605	630	-

Note. Decimal point is understood before all the entries. The correlations on Sample B are given above diagonal; Those on Sample A below diagonal. n=500 for each sample.

Table C-9

Means and Standard Deviations of Parental Acceptance Scale on Samples A and B

Item #	Sample A M	Sample A SD	Sample B M	Sample B SD
	Mother's scale			
119	4.062	1.145	4.172	1.075
123	3.418	1.197	3.537	1.215
124	3.282	1.319	3.423	1.257
125	3.163	1.338	3.337	1.256
127	3.850	1.079	3.936	1.058
128	3.571	1.136	3.749	1.139
129	3.976	1.080	4.110	1.030
	Father's scale			
178	3.608	1.273	3.733	1.226
182	3.222	1.263	3.362	1.214
183	3.244	1.306	3.303	1.268
184	3.047	1.274	3.209	1.247
186	3.703	1.142	3.668	1.194
187	3.449	1.213	3.492	1.179
188	3.620	1.194	3.744	1.139

Note. n=500 for each sample.

Table C-10

Changes in Weights of Item Response for Mother's Acceptance Scale, using the Method of Reciprocal Averages

Item #	Response category	Frequency	Input weight	Mean scale score	Desired output weight	Mean scale score
119	1	34	1	15.176	2	27.706
	2	80	2	18.438	3	33.587
	3	124	3	20.742	4	36.685
	4	261	4	24.375	6	43.847
	5	501	5	29.535	9	54.359
123	1	61	1	15.049	1	26.197
	2	168	2	20.673	4	37.827
	3	273	3	23.813	6	43.359
	4	241	4	27.929	8	51.432
	5	257	5	31.514	9	57.086
124	1	101	1	17.683	3	32.099
	2	181	2	21.370	5	39.608
	3	232	3	23.927	6	43.164
	4	248	4	27.851	8	51.141
	5	238	5	31.975	9	57.765
125	1	121	1	17.636	3	32.033
	2	175	2	21.211	5	39.200
	3	261	3	24.709	6	44.659
	4	226	4	28.580	8	52.527
	5	217	5	32.111	9	58.032

continued

(Table C-10 continued)

Item #	Response category	Frequency	Input weight	Mean scale score	Desired output weight	Mean scale score
127	1	28	1	13.857	1	24.357
	2	82	2	17.902	3	32.122
	3	241	3	21.988	5	39.614
	4	289	4	26.059	7	47.623
	5	360	5	30.656	9	56.194
128	1	46	1	14.196	1	24.913
	2	122	2	19.148	4	35.361
	3	256	3	22.719	5	40.684
	4	294	4	27.289	8	50.435
	5	282	5	31.539	9	57.280
129	1	20	1	12.800	1	22.950
	2	83	2	17.699	3	32.313
	3	170	3	20.918	4	37.324
	4	288	4	24.868	6	44.885
	5	439	5	30.248	9	55.679

Note. N=1,000

Table C-11

Changes in Weights of Item Response for Father's Acceptance Scale, using the Method of Reciprocal Averages

Item #	Response category	Frequency	Input weight	Mean scale score	Desired output weight	Mean scale score
178	1	61	1	12.689	1	22.377
	2	153	2	17.608	4	33.902
	3	216	3	20.981	5	38.481
	4	227	4	24.965	7	45.956
	5	343	5	30.236	9	55.143
182	1	87	1	13.655	2	24.678
	2	194	2	18.912	4	35.722
	3	288	3	22.557	6	41.622
	4	215	4	27.112	8	49.991
	5	216	5	31.736	9	57.398
183	1	111	1	14.459	2	26.315
	2	181	2	19.359	5	37.287
	3	266	3	22.936	6	42.350
	4	221	4	26.670	7	48.434
	5	221	5	31.376	9	56.882
184	1	120	1	14.558	2	26.433
	2	203	2	19.985	5	38.246
	3	295	3	23.434	6	42.966
	4	200	4	27.655	8	50.785
	5	182	5	31.813	9	57.374

continued

(Table C-11 continued)

Item #	Response category	Frequency	Input weight	Mean scale score	Desired output weight	Mean scale score
186	1	52	1	13.885	2	25.038
	2	118	2	17.178	4	32.847
	3	268	3	21.164	5	38.974
	4	255	4	24.729	7	45.490
	5	307	5	30.329	9	55.332
187	1	70	1	12.657	1	22.500
	2	147	2	18.279	4	35.177
	3	291	3	21.519	5	39.643
	4	251	4	26.355	7	48.275
	5	241	5	31.485	9	57.307
188	1	51	1	10.882	1	18.824
	2	120	2	17.183	4	33.233
	3	268	3	20.892	5	38.507
	4	253	4	25.154	7	46.217
	5	308	5	30.708	9	56.003

Note. N=1,000

Table C-12

Cluster Correlation Matrix for Criterion Items

Cluster	I	II	III	IV	V	VI	VII
I	-						
II	342	-					
III	148	115	-				
IV	279	163	-046	-			
V	186	147	426	097	-		
VI	212	133	032	371	064	-	
VII	085	044	369	-053	307	003	-
VIII	374	412	082	313	131	230	083

Note. N=1,000. Decimal is understood before all the entries.

Table C-13

Inter item Correlations for Criterion Items

Item no.	313	314	315	256	257	268	270	89	90	96	145
313	-										
314	427	-									
315	427	462	-								
256	-272	-204	-187	-							
257	-194	-168	-121	522	-						
268	-203	-208	-193	355	348	-					
270	-281	-239	-204	397	352	496	-				
89	-129	-092	-113	034	-063	079	033	-			
90	-089	-145	-078	154	065	177	069	453	-		
96	-066	-087	-009	057	046	138	072	325	371	-	
145	245	229	195	-093	-123	-100	-113	000	-059	-021	-
202	096	131	093	-042	-103	-079	-141	076	015	047	196
204	165	169	145	-058	-098	-084	-083	035	-028	001	319
211	101	137	134	-056	-107	-034	-038	075	059	069	278
64	075	027	038	-045	-016	-042	-022	-130	-121	-173	091
69	100	096	098	-049	-058	-086	-074	-149	-213	-192	057
73	-082	-122	-109	088	070	118	089	164	231	144	-031
79	048	-036	-004	-042	038	034	077	-109	-067	-056	009
99	-083	-075	-074	042	-001	056	071	236	207	273	-091
102	130	164	126	-084	-102	-097	-086	-089	-136	-097	169
103	098	132	065	-058	-063	-133	-117	-135	-290	-255	077
222	-068	-101	-065	114	065	178	101	222	289	266	-031
36	069	074	071	007	-051	-031	009	024	025	020	157
153	185	139	126	-099	-074	-112	-077	-070	-051	-016	269
158	141	124	128	-117	-126	-051	-092	-038	-035	008	249

continued

(Table C-13 continued)

Item no.	313	314	315	256	257	268	270	89	90	96	145
91	-072	-107	-044	070	006	019	073	099	052	143	-078
95	-085	-049	-091	071	-020	099	076	204	203	259	-048
100	023	-014	040	-029	-059	027	015	177	128	222	012
234	059	-036	-019	-014	-021	-004	-046	180	201	177	006
269	-152	-127	-137	185	273	297	356	002	093	081	-040
272	-190	-201	-159	207	260	324	402	066	065	085	-059
282	132	121	133	-104	-057	-077	-115	044	007	-036	209
317	183	251	224	-035	-087	-092	-066	-011	-023	-031	206

Item no.	202	204	211	64	69	73	79	99	102	103	222
202	-										
204	311	-									
211	409	425	-								
64	046	077	046	-							
69	-046	096	052	346	-						
73	-002	-077	-027	-157	-258	-					
79	-042	-002	-018	316	182	-047	-				
99	043	-017	-021	-161	-225	232	-068	-			
102	117	172	152	217	179	-156	159	-229	-		
103	046	070	054	152	307	-249	034	-142	265	-	
222	083	-014	093	-091	-274	264	-002	244	-115	-223	-
36	083	233	187	-013	044	-031	-046	016	074	016	099
153	102	236	189	038	066	-069	002	-039	104	041	014
158	159	183	239	055	044	-015	-028	-034	092	047	015

continued

(Table C-13 continued)

Item no.	202	204	211	64	69	73	79	99	102	103	222
91	000	-016	-018	-076	-116	128	-028	194	-106	-100	166
95	014	-008	079	-080	-121	114	-067	234	-029	-079	121
100	084	-008	103	-076	-155	121	-099	240	-010	-072	223
234	057	039	120	-011	-044	119	043	137	-011	-088	199
269	-039	-064	-059	019	-046	077	048	061	-106	-061	093
272	-069	-064	-035	-001	-010	044	049	049	-109	-111	137
282	226	240	303	037	044	-067	064	-083	116	062	060
317	123	149	119	-042	-011	005	056	-016	102	042	014

Item no.	36	153	158	91	95	100	234	269	272	282
36	-									
153	191	-								
158	164	429	-							
91	021	-028	-043	-						
95	026	-074	-072	082	-					
100	056	000	-003	172	203	-				
234	051	029	035	056	146	158	-			
269	-052	-094	-101	076	064	019	008	-		
272	050	-052	-022	032	059	-014	046	164	-	
282	118	125	145	-057	-075	035	009	-134	-016	-
317	092	185	158	001	002	014	-036	-117	-094	113

Note. N=1,000. Decimal is understood before all the entries.

Table C-14

Two-Way ANOVA with Repeated Measures on Items

Source of Variance	SS	df	MS	F	p
1. Helping behavior					
Groups	15.640	3	5.213	2.987	.016
Subjects within groups	762.789	437	1.746		
Items	7.688	2	3.844	6.846	.001
Group x item	2.718	6	0.453	0.807	.283
Item x subjects within groups	490.730	874	0.561		
2. Anti social behavior					
Groups	23.673	3	7.891	4.829	.002
Subjects within groups	714.165	437	1.634		
Items	29.594	3	9.865	21.418	.001
Group x item	5.465	9	0.607	1.318	.111
Item x subjects within groups	603.813	1,311	0.461		
3. Feeling of isolation					
Groups	15.213	3	5.073	2.509	.029
Subjects within groups	883.500	437	2.022		
Items	35.455	2	17.727	25.778	.001
Group x item	7.277	6	1.213	1.767	.052
Item x subjects within groups	601.051	874	0.688		
4. Concerns about social problems					
Groups	33.829	3	11.276	4.470	.002
Subjects within groups	1,102.445	437	2.523		
Items	23.222	3	7.741	8.921	.001
Group x item	2.630	9	0.292	0.337	.482
Item x subjects within groups	1,137.535	1,311	0.868		

continued

(Table C-14 continued)

Source of Variance	SS	df	MS	F	p
5. Self-concept					
Groups	73.493	3	24.498	10.029	.001
Subjects within groups	1,067.457	437	2.443		
Items	188.920	7	26.989	31.076	.001
Group x item	57.541	21	2.740	3.155	.001
Item x subjects within groups	2,656.609	3,059	0.868		
6. Ideal world-view					
Groups	8.779	3	2.926	2.263	.041
Subjects within groups	565.086	437	1.293		
Items	26.562	2	13.281	19.832	.001
Group x item	8.194	6	1.366	2.039	.029
Item x subjects within groups	585.293	874	0.670		

Note. One-tailed tests were employed to estimate the probability.

Table C-15

One-Way ANOVA for Comparing Mean Difference between Four Levels of Parental Acceptance by Items

Item no.	Sum of squares Between	Sum of squares Within	Mean squares Between	Mean squares Within	F	p
			1. Helping behavior			
313	20.6554	405.9985	6.8851	0.9291	7.4109	.0001
314	24.7890	455.6906	8.2630	1.0428	7.9241	.0000
315	13.4750	391.8716	4.4917	0.8967	5.0089	.0010
			2. Anti social behavior			
256	11.8118	259.0818	3.9373	0.5929	6.6411	.0001
257	34.1346	595.2815	11.3782	1.3622	8.3528	.0000
268	2.6059	190.5017	0.8686	0.4359	1.9926	.0572
270	8.6439	273.1294	2.8813	0.6250	4.6100	.0018
			3. Feeling of isolation			
89	6.2895	525.6062	2.0965	1.2028	1.7431	.0787
90	19.2768	477.5980	6.4256	1.0929	5.8794	.0003
96	50.1141	481.3544	16.7047	1.1015	15.1655	.0000
			4. Concerns about social problems			
145	34.4486	380.4470	11.4829	0.8706	13.1898	.0000
202	24.2361	743.6147	8.0787	1.7016	4.7476	.0015
204	46.9322	533.5934	15.6441	1.2210	12.8121	.0000
211	22.3193	582.3234	7.4398	1.3325	5.5831	.0005
			5. Self-concept			
64	32.9798	440.0588	10.9933	1.0070	10.9168	.0000
69	74.8623	471.8225	24.9541	1.0797	23.1124	.0000
73	48.6031	414.3878	16.2010	0.9483	17.0851	.0000
79	8.7617	624.1272	2.9206	1.4282	2.0449	.0535

continued

(Table C-16 continued)

Item no.	Sum of squares: Between	Sum of squares: Within	Mean squares: Between	Mean squares: Within	F	p
99	40.0185	464.0172	13.3395	1.0618	12.5628	.0000
102	41.7181	417.4182	13.9060	0.9552	14.5584	.0000
103	51.1741	416.2182	17.0580	0.9624	17.9097	.0000
222	35.1022	476.0254	11.7007	1.0893	10.7415	.0000
			6. Ideal world-view			
36	5.4431	343.0821	1.8144	0.7851	2.3111	.0378
153	10.5916	506.6064	3.5305	1.1593	3.0454	.0143
158	16.6004	300.6830	5.5335	0.6881	8.0421	.0000
			Extra items			
91	6.8189	481.0179	2.2730	1.1007	2.0650	.0521
95	14.0478	599.2175	4.6826	1.3712	3.4149	.0087
100	5.4595	458.7627	1.8198	1.0498	1.7335	.0797
234	15.7896	522.4576	5.2632	1.1956	4.4023	.0023
269	25.0903	436.6452	8.3634	0.9992	8.3702	.0000
272	4.5380	548.8938	1.5127	1.2560	1.2043	.1539
282	42.5983	550.0321	14.1994	1.2587	11.2814	.0000
317	24.2889	671.1453	8.0963	1.5358	5.2717	.0007

Note. df = 3, 437

One-tailed tests were employed to estimate the probability.